



This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

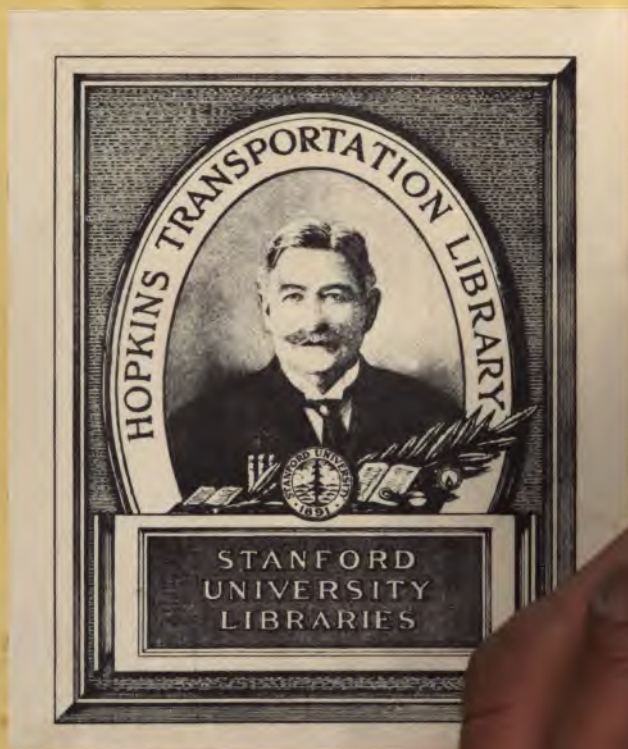
We also ask that you:

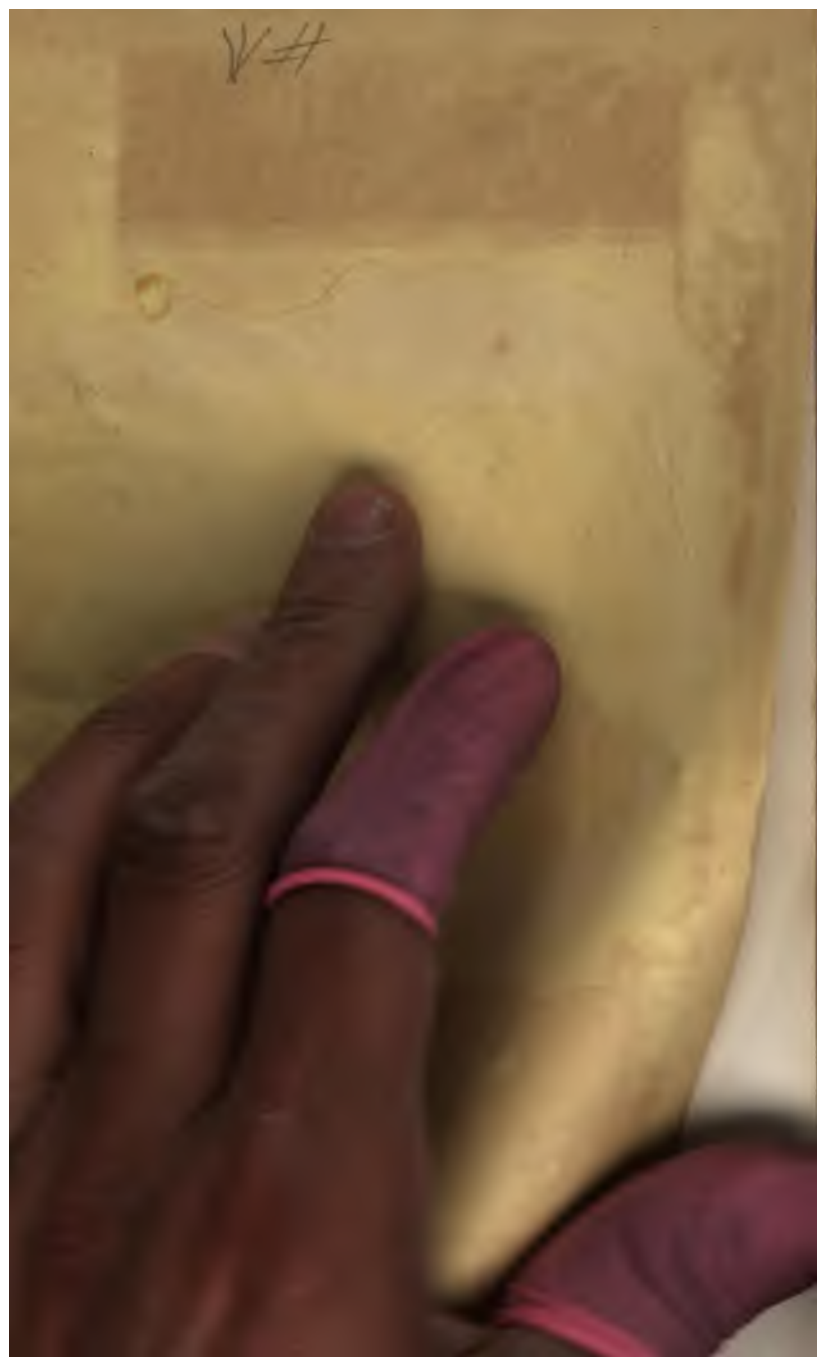
- + *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.
- + *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.
- + *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.
- + *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at <http://books.google.com/>

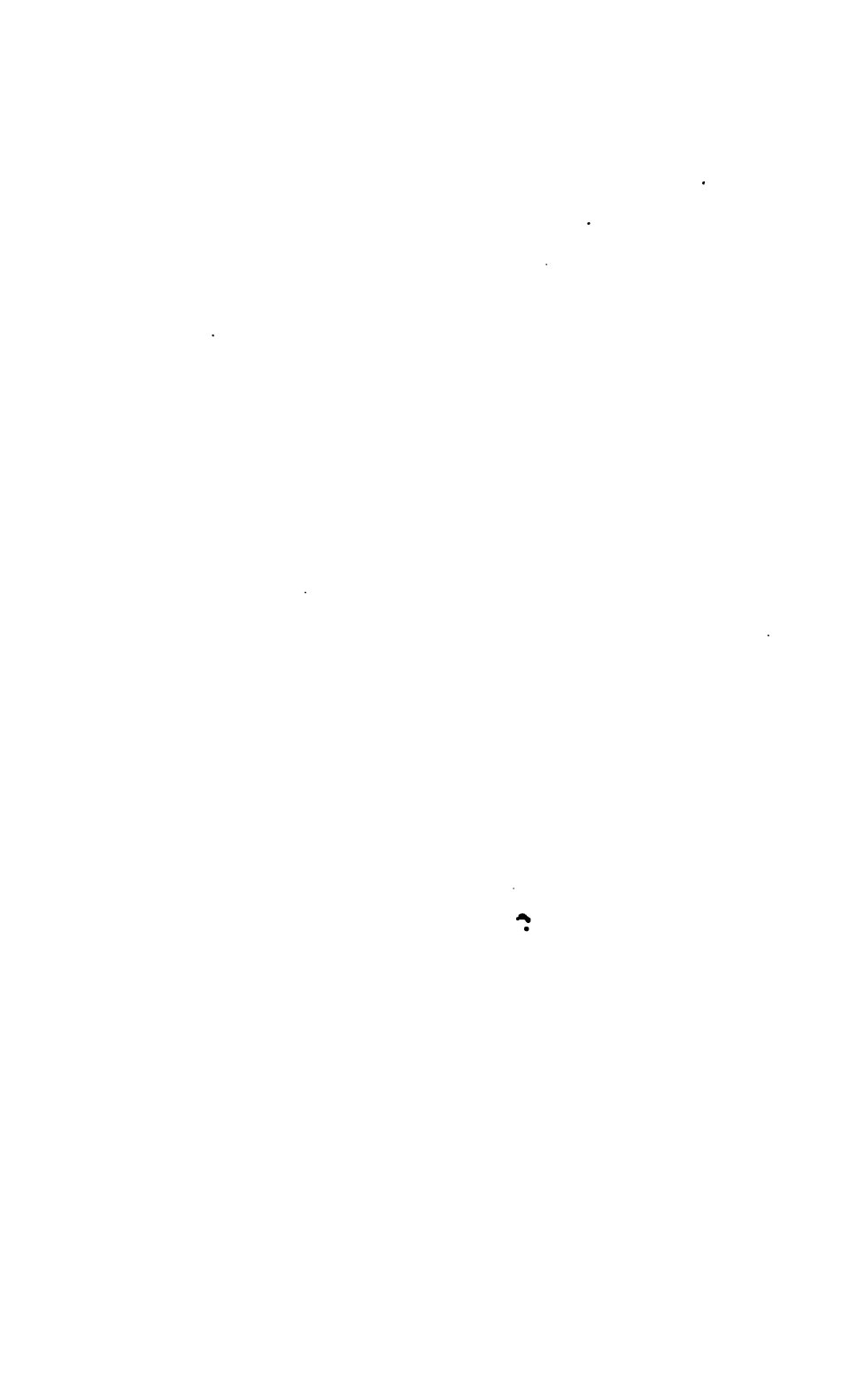


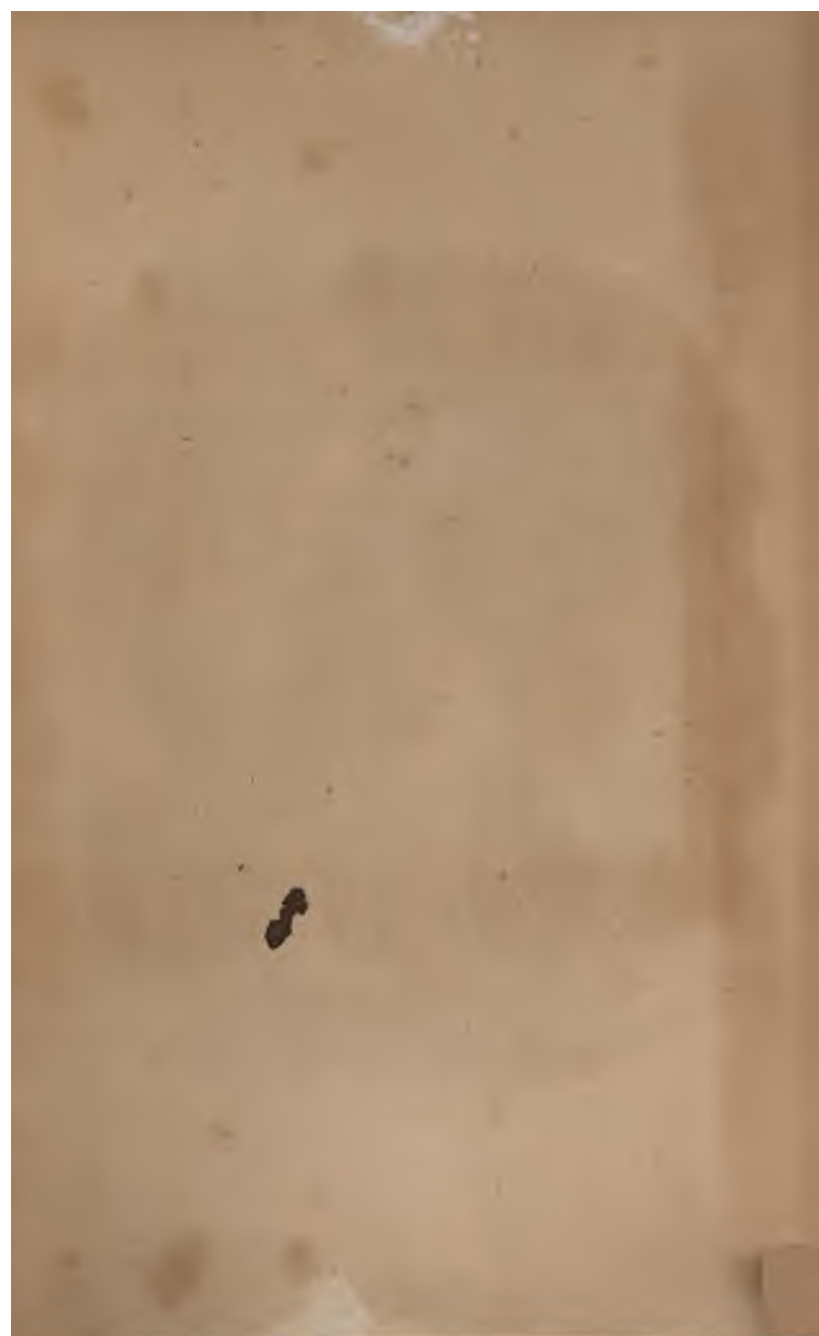






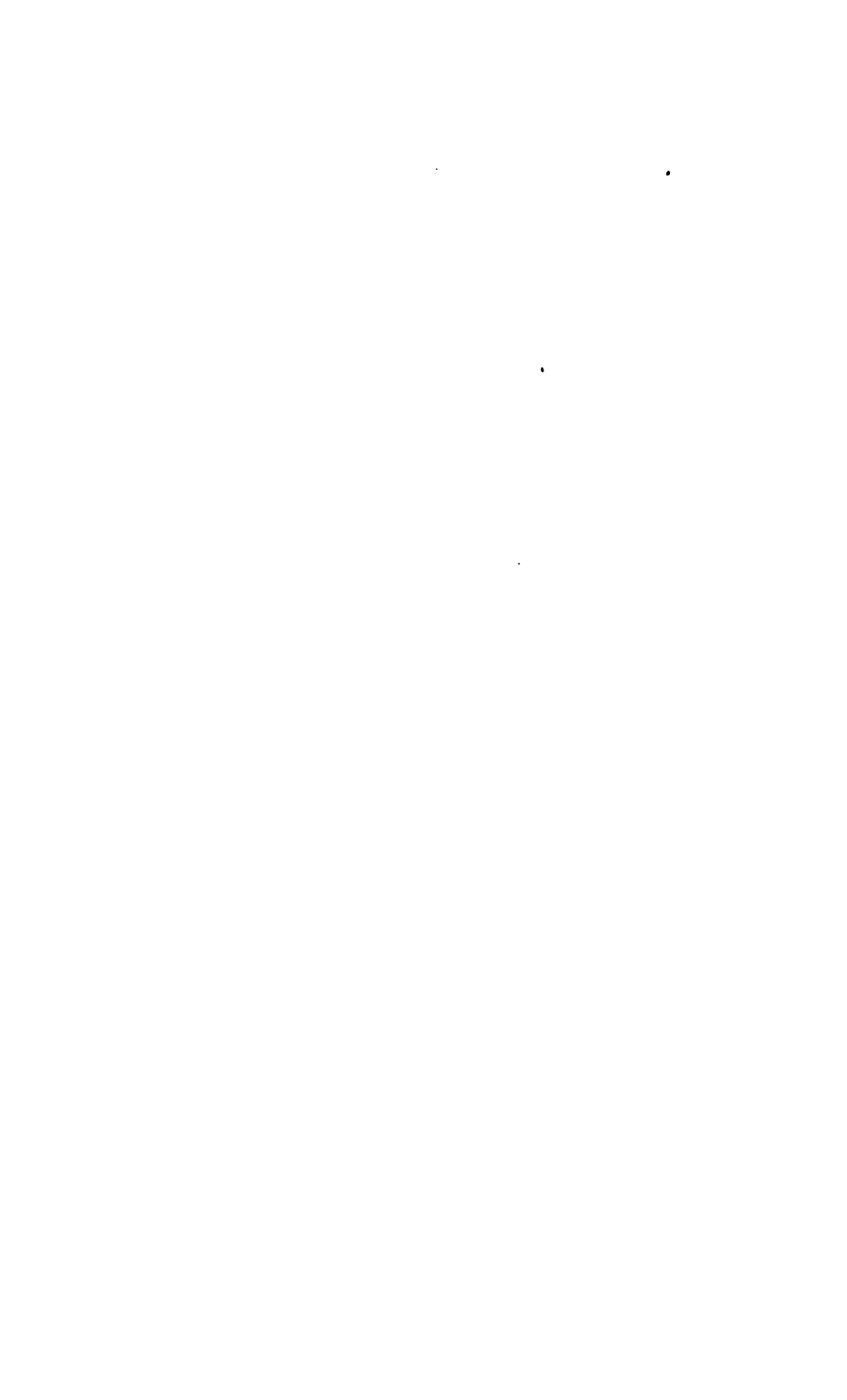


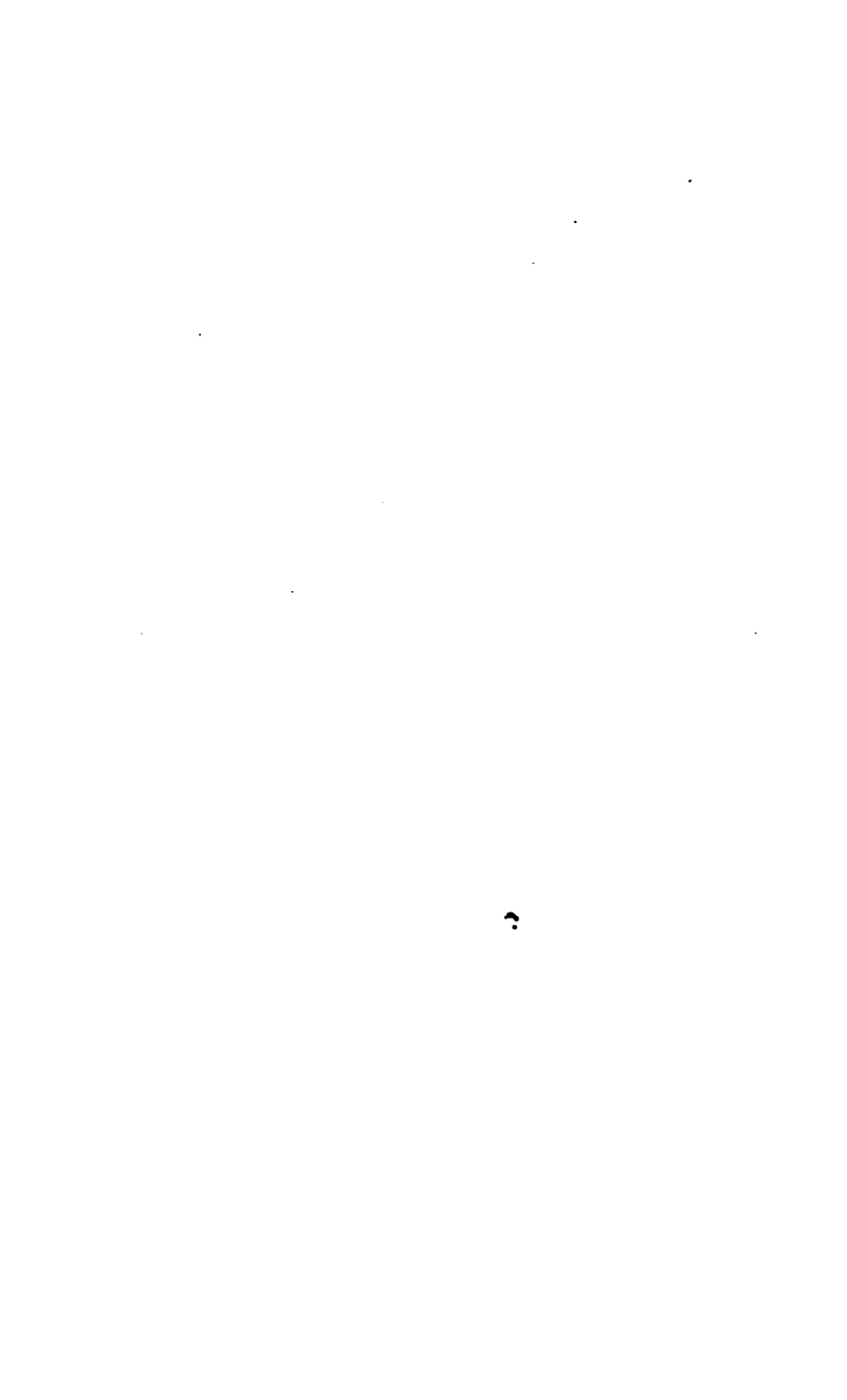






THE GRAVE OF JOHN FITCH, BARDSTOWN, KY.









THE GRAVE OF JOHN FITCH, BARDSTOWN, KY.

The
Life
OF
JOHN FITCH,
THE
Inventor of the Steamboat.

By THOMPSON WESTCOTT.



"Sic vos non vobis."—Virgil.

PHILADELPHIA:
J. B. LIPPINCOTT & CO.
1857.



The
Life
OF
JOHN FITCH,
THE
Inventor of the Steamboat.

By THOMPSON WESTCOTT.



"Sic vos non vobis."—Virgil.

PHILADELPHIA:
J. B. LIPPINCOTT & CO.
1857.

1812

MISS J. J. J.

MISS J. J. J.

MISS J. J. J.

MISS J. J. J.

MISS J. J. J.

LIFE
OF
JOHN FITCH,
THE
INVENTOR OF THE STEAM-BOAT.
BY
THOMPSON WESTCOTT.
"



PHILADELPHIA :
J. B. LIPPINCOTT & CO.
1857.

VM140
F5W5

Entered, according to Act of Congress, in the year 1857, by
J. B. LIPPINCOTT & CO.,
in the Clerk's Office of the District Court of the United States for the Eastern
District of Pennsylvania.

TO
THE OFFICERS AND STOCKHOLDERS
OF THE

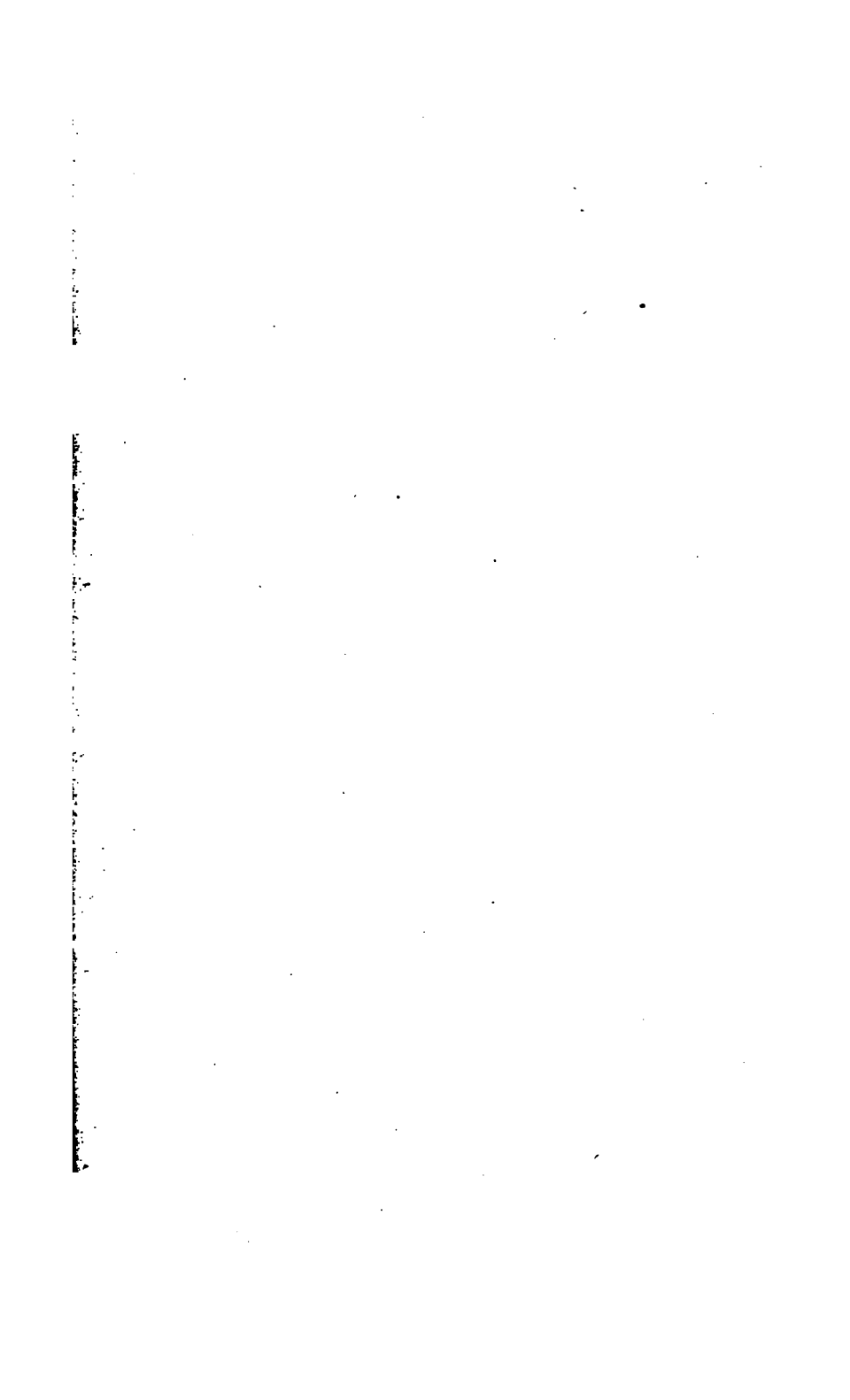
Library Company of Philadelphia,

THE SUCCESSORS OF THOSE WHO, SIXTY-FOUR YEARS AGO, RECEIVED
THE WRITTEN MEMORIALS OF AN UNFORTUNATE GENIUS,
AND PRESERVED THEM UNTIL A TIME WHEN THEY
COULD BE APPRECIATED AND UNDERSTOOD,

THIS BIOGRAPHY
OF A MAN FAITHFUL AMID DISCOURAGEMENTS,
PATIENT UNDER INSULT,
AND
LOFTY IN PURPOSE AGAINST THE WORLD'S CONTEMPT,

Is Respectfully Dedicated.

September 1, 1887.



P R E F A C E.

"A BIOGRAPHY of John Fitch," wrote Noah Webster to R. W. Griswold, in 1839, "is a desideratum yet to be supplied." The world has been accustomed to consider John Fitch as a theorist, who merely imagined, or unsuccessfully attempted to prove, the possibility of moving boats by steam. By the general voice, Robert Fulton has been most unjustly lauded as the inventor of the steam-boat. Honor is paid to his memory by statesmen, orators, and writers, and "poor John Fitch," if ever alluded to, is spoken of as one who knew not how to produce the effects which he was ingenious enough to conjecture were possible. Perhaps a stronger instance of the tendency of mankind to elevate the fortunate and to degrade the unfortunate, cannot be adduced. It is the design of this volume to remove all pretext for error upon this point, and to endeavor to place the fame of the original in the favorable position now occupied by the imitator and copyist. If the United States are entitled to the distinction of being the scene of the first practical applications of steam to the propulsion of vessels, reliance must be placed upon Fitch's successful experiments in 1786, 1787, 1788, and 1789, and which in 1790 were crowned by the practical proofs afforded by the passages of a packet, passenger, and freight steam-boat on the Delaware, which, for more than three months, made trips between certain places as regularly as do the steam-boats of the present day, with ease and safety, and without material stoppage, accident, or delay. If we cannot rely upon Fitch's claims to the invention of the steam-boat, England is entitled to that honor. Symington's steam-boat was tried in 1788, and practically succeeded in 1801. Fulton's experiments at Plombieres were made in 1803, whilst his triumphs on the Hudson (entirely destitute of originality) were delayed until 1807; or *twenty-one years* after Fitch propelled his first skiff steam-boat on the Delaware, and nearly as long after Mil-

ler and Symington built the first Scottish steam pleasure-boat at Dalwinston.

In this narration are sketched the early career of the subject of the biography; his Revolutionary services to the State of New Jersey; his adventures in the wilds of Kentucky and Ohio; his captivity by Indians, and as a British prisoner; his exertions to obtain means to construct a steam-boat; his trials, failures, difficulties in building machinery, and his successful application of steam to the propulsion of three steam-boats on the Delaware; the abandonment of a fourth when nearly finished; the propulsion of a steam-boat at New York; his mortification at the lukewarmness of his countrymen as to the merit of his invention, and his final suicide, to escape from an existence persecuted by continual misfortunes.

As collateral to some of these events, and proper to an understanding of them, full reference is made to the steam-boat plans of James Rumsey, together with notices of the experiments of Samuel Morey, Nicholas I. Roosevelt, William Longstreet, the Stevens family, and Oliver Evans, *after* the time of Fitch, and *before* the appearance of the Clermont, Fulton's first steam-boat on the Hudson. To these have been added, references to steam-boat trials in Europe, by De Jouffroy, Auxiron, Perrier, Miller, and Symington; together with a sketch of the contests between various inventors in the United States after 1807, notices of early ocean steam navigation as well as of Western navigation, and whatever could be adduced to add interest to the main narrative, and to render the volume within the limits assigned a record of the origin and progress of the propulsion of vessels by steam.

The contemporaries of John Fitch have nearly all passed from the stage of life. To a new generation appeal is made for justice to the memory of one whose fame has long been obscured by an usurped credit, improperly allowed to another. If the present age does not, posterity, it is hoped, will, reverse, as far as is now possible, the foreboding prophecy of the derided and despised genius, written in 1791: "The day will come when *some more powerful man* will get fame and riches from *my* invention; but nobody will believe that poor John Fitch can do anything worthy of attention."

PHILADELPHIA, Sept. 1, 1857.

CONTENTS.

CHAPTER I.

INFANCY AND BOYHOOD.

	Page
Reasons given by John Fitch for writing an account of his life—Origin of the Fitch family—Emigration of the ancestors of John Fitch to America—They settle in Connecticut—Marriage of Joseph Fitch—Birth of John—Is sent to school—Death of his mother—Second marriage of his father—Heroism of the boy, and punishment therefor—Is taken from school when ten years of age—His progress in arithmetic—Studies at home—Procures a copy of Salmon's Geography—His efforts to earn sufficient money to pay for it—Assists Governor Wolcott in making surveys—Disappointment—The Governor and the road-menders—Fitch hired out to a store-keeper—Goes to sea—Returns again	25

CHAPTER II.

APPRENTICESHIP — MANHOOD — MARRIAGE.

Bound apprentice to Benjamin Cheany, to learn clock-making and watch-making—Compelled to labor on the farm—Scarcity of food—The story of the twelve-days-old (vii)	
---	--

broth—Is prevented from learning anything about the business—Badly treated by Cheany—His indentures cancelled—Goes to Timothy Cheany—Still deprived of opportunities of learning his trade—Nearly starved—Leaves him, at length, at manhood, ignorant of the business—Sets up brass-founding—Is allowed to take a clock apart and put it together—Engages in the manufacture of potash—Failure in that speculation—Marries Lucy Roberts—Unhappy union—Birth of Shaler Fitch—Domestic dissensions—Abandons his wife and family 41

CHAPTER III.

THE SILVERSMITH—THE GUNSMITH.

Fitch goes to Pittsfield, New York, and successively visits Albany and New York—Proceeds toward Elizabethtown, New Jersey—Adventure with a termagant—Settles at Trenton, New Jersey—Is aided by Matthew Clunn—Becomes journeyman to a silversmith—Makes buttons—Travels through the country to dispose of them—Buys the tools of his former employer—Gets into a prosperous business as a silversmith—Breaking out of the Revolution—Fitch elected a lieutenant in the New Jersey line—Disputes about rank—Injustice done him—Leaves the service—Is employed by New Jersey as armorer of the troops—His services—Approach of the British to Trenton—Removal to Bucks County, Pennsylvania—Becomes a member of the Hatborough Library Company . . . 51

CHAPTER IV.

THE SUTTLE—THE SURVEYOR.

Fitch supplies the American army at Valley Forge with tobacco, beer, and other articles—Buries his gold and silver in Bucks County—It is discovered and stolen—Dis-

covery of the thief, and partial restitution — Commences work again as a silversmith—Great depreciation of Continental money — Determines to lay out his Continental money in Virginia land-warrants—Is appointed a deputy-surveyor in Kentucky—Adventures on the Ohio River—Stirring fight with Indians, who capture a boat—Escape from the enemy—Arrival in Kentucky—Surveys of lands there—Profitable investments—Patents for 1600 acres of land	63
---	----

CHAPTER V.

THE INDIAN'S CAPTIVE.

Journey to Kentucky in the spring of 1782—Buys flour at Pittsburg—Voyage down the Ohio—Boat runs aground near the Muskingum River—Flour taken out to set her afloat—Scouts sent out on the island—Do not return—The parties in the boats attacked by Indians—Two men killed—Resistance—Capture by Indians—Magee and Bradley scalped—Boat set adrift with a war-club tied to the steering-oar—Attempt of Captain Buffaloe to tomahawk Fitch—Interposition of Captain Crow—Fitch, bare-headed, marches with his companions through the wilderness toward Detroit—Division of the prisoners among their captors—Fitch becomes the property of Captain Buffaloe—Manner of securing the prisoners by-day and night—Scarcity of food—The pains of hunger—They reach a village of the Delawares—The scalp halloo—Ceremony with the scalps of Bradley and Magee—Williamson's massacre of Moravian Indians on the Muskingum—Consequences of that ruthless act to the prisoners—March toward the principal town of the Delawares—Preparations for running the gauntlet—The flight toward the council-house—Assaults received by the prisoners on their way there—The worst treatment from the women—The council-house gained	73
--	----

CHAPTER VI.

ADVENTURES AMONG THE SAVAGES.

The Grand Council deliberate on the fate of the prisoners — Preparations for a dance — Fires built — Curious steps and ceremonies — The prisoners invited to join — Refusal of Fitch — Offer made to him by a chief for his breeches — His refusal — Another prisoner more compliant — The prisoners suffered to proceed — Four of them given up to the Delaware chief — Fitch and six others marched to Captain Buffaloe's town — Separation from Captain Washington's party — The prisoners set to house-building by Buffaloe — Scarcity of food — Buffaloe and his handmaid — The march resumed towards Detroit — Meeting of Buffaloe with his wife and child — Their separation — The party proceeds — Bad weather — Arrive at the trading-post of Cochran and Saunders, at an Ottawa town on the Maumee River — Arrival of Delawares — Murder of a servant of Saunders by one of them — Fearful peril of the prisoners from the drunken Indians — The scalp halloo — The Ottawa Indians take the part of the captives — The Delawares retire — Captain Buffaloe dooms the prisoners to destruction, and orders them to go to the Delaware camp — Special protection accorded to Fitch — Danger of the others — Narrow escape of Jarrad — Interposition of Saunders in their behalf — They go with him in a canoe to Detroit — Capture of Sturgeon, and great feast 86

CHAPTER VII.

THE PRISONER OF WAR IN CANADA.

Arrival at Detroit — They give the garrison the first information of the capture of Cornwallis — Incredulity of the officers — The prisoners are closely confined, to prevent them from spreading the news — Means of evasion adopted —

Fitch earns money by engraving—Voyage over the Lake—Arrival at Niagara—Departure, and final arrival at Prison Island, opposite Coteau de Lac—Large number of prisoners there—Occupations of Fitch while on the island—He cultivates a garden—Makes tools out of hoops and rough pieces of iron—Builds a furnace—Makes buttons and wooden clocks—Makes his own charcoal—Takes journeymen and apprentices from among the prisoners—His workshop a favorite place of resort for the British officers—Jealousy of the other prisoners—Attempts of prisoners to escape 96

CHAPTER VIII.

THE EXCHANGE—THE SEA VOYAGE.

Exchange of the prisoners—Fitch sent to Quebec—Placed on board the cartel-ship Baker and Atly, bound to Philadelphia—The voyage—A severe storm—Fears of shipwreck—Curious preparation for the expected disaster—Encounter of an American frigate—The South Carolina chased by three British men-of-war—The sea-fight—Capture of the South Carolina—The Baker and Atly steered for New York—Release of the prisoners—Fitch returns to Bucks County—Joins a Masonic lodge 104

CHAPTER IX.

ADVENTURES IN KENTUCKY AND OHIO.

A company formed to survey lands in Ohio—The party go to that region—Survey from the Hockhocking to Wheeling Island—Difficulty—Fears of Indians—Fitch goes with frontier men into the woods—Rapid surveys—Return to Pennsylvania on foot—Journey to Ohio in the spring of 1785—Survey in the neighborhood of the Muskingum and the Hockhocking—Indian signs—Division of the party—

Narrow escape of Fitch and his companions—Sterrett and his associates captured—Surveys at the great Kanawha—Return to Bucks County—Resolution of Congress for laying out new States—Another journey to Ohio—More surveys—Return to Bucks—Petition to Congress for the post of surveyor—A map of the North-western Territory engraved by Fitch and printed on a press made by himself. 111

CHAPTER X.

THE INVENTION OF THE STEAM-BOAT—JOURNEY TO VIRGINIA.

First idea of steam land-carriages, April, 1785—The idea given up for the plan of a steam-boat—Trial of a model with paddle-wheels—Daniel Longstreth—Hon. N. B. Boileau—Application to Congress—Letters of Dr. John Ewing, William C. Houston, and Provost Smith, of Princeton—Fitch's letter to Congress, asking assistance—Referred to a Committee, who make no report—Application to the Spanish Minister—Drawings and model of the steam-boat laid before the American Philosophical Society—Application to Dr. Franklin—Accusation that Dr. Franklin attempted to deprive Fitch of the honor of the invention—Fitch sets out for Kentucky, to gain assistance—Visit to William Henry, at Lancaster—Interview with Governor Johnson, of Maryland—Interview with Washington—James Rumsey's pole-boat, working by mechanical power—Petition to the Legislature of Virginia for assistance—Bond to Patrick Henry, Governor of Virginia, conditioned to apply the proceeds of the map of the North-western Territory to building a steam-boat—Petitions to the Legislatures of Pennsylvania and Maryland—Interview with Franklin—Insulting conduct of the latter. 119

CHAPTER XI.

THE STEAM-BOAT COMPANY—THE SKIFF STEAM-BOAT, 1786.

Proposal to Arthur Donaldson to build a steam-boat—Application to the State of New Jersey for an appropriation

of loan-certificates refused—Donaldson pretends to be the inventor of a steam-boat—Fitch presents a petition to the Legislature of Pennsylvania for a law giving him an exclusive right to the navigation of vessels by fire and steam—Donaldson contests his claim—The matter referred to a committee—Law of New Jersey in favor of Fitch—New petition to the Legislature of Pennsylvania—The Steam-boat Company formed—Difficulty about getting a steam-engine made—Sketch of Christopher Colles, who built the first steam-engine ever constructed in America, in 1773—Introduction to Henry Voight, who is induced to interest himself in the scheme—Working model of a steam-engine with one-inch cylinder made—Failure—Larger model (three-inch cylinder) made—Trial of a skiff with the screw of paddles—Not very successful—Disheartened—Invention of the mode of rowing by oars at the side of the boat—Trial of the first skiff, moved by steam—Success of the experiment, July 27, 1786 . . . 148

CHAPTER XII.

ENCOURAGEMENT BY THE STATES—LARGE STEAM-BOAT COMMENCED.

The Steam-boat Company resolve to build a large steam-boat, to be moved by an engine with twelve-inch cylinder—Difficulty about getting the subscribers to contribute the required sums—Indifference of the shareholders—Distress of the projector—Application to the Legislature of Pennsylvania for the loan of £150 to build the boat and machinery—Favorable report of Committee—The Assembly reject the proposition—Letter to General Mifflin for assistance—The controversy with Donaldson—The latter meets with no favor—Laws granting special rights to Fitch for fourteen years passed by Pennsylvania, New York, and Delaware . . . 163

CHAPTER XIII.

THE FIRST STEAM-BOAT FINISHED—SUCCESSFUL TRIAL EXPERIMENT, 1787.

The Company resolve to go on with the boat—Description of the steam-boat of 1786, with paddles at the sides—

The steam-engine—Difficulties attending its construction—Deed of reciprocal advantage—Names of the members of the Steam-boat Company—The steam-engine completed, and found defective—Taken out of the boat from the foundation and set up again—The condenser imperfect—New pipe condenser adopted on a plan of Henry Voight's—Steam-valves will not work—Double cock invented by Voight—The steam-boat propelled—The engine brought to work briskly, but the boiler does not furnish enough steam—Shareholders discouraged—Some abandon the project—Appeal to the public prepared by Fitch—Effect of this paper on the stockholders—More money furnished—Successful trial on the 22d of August, 1787, in presence of the members of the Convention to frame a Federal Constitution—Certificates of Dr. Johnston, of Virginia, David Rittenhouse, John Ewing, and Andrew Ellicott—The Company order a larger steam-engine to be constructed, with an eighteen-inch cylinder—First information that James Rumsey, of Virginia, claimed to have invented a steam-boat—Application by Fitch to the Legislature of Virginia for a law securing his rights—Opposition by the friends of Rumsey—Rumsey's boat proved not to be a steam-boat—Report in favor of Fitch, and passage of a law securing his rights—Law in favor of Fitch asked of Maryland—Resisted by Ex-Governor Thomas Johnston 177

CHAPTER XIV.

APPLICATION TO CONGRESS—JAMES RUMSEY'S STEAM-BOAT.

Return to Philadelphia—Petition to Congress for assistance—Congress not full enough to vote on the proposition—Favorable report of the Committee of Congress—A vote not pressed—Appearance of Rumsey's pamphlet upon the steam-boat—Fitch's reply, "The Original Steam-boat supported"—The report on Fitch's proposition called up in Congress, and laid on the table—Chagrin and mortification of the inventor 199

CHAPTER XV.

CONTROVERSY WITH RUMSEY.

The controversy with Rumsey—The allegations on each side—The invention of the pipe or tubular boiler—The pamphlets by Rumsey, Fitch, and Barnes—Collocation of proofs—Reasons for believing that Fitch was entitled to priority in actual experiment—Action of Congress on the claims of Rumsey's heirs, 1837-8-9 207

CHAPTER XVI.

THE SECOND SUCCESSFUL STEAM-BOAT OF 1788.

Work on the boat continued—Improvements by Voight—The pipe boiler put in use—The eighteen-inch cylinder defective—Broken up by the founders—Dilemma of the Company—Resolve to procure a new boat—Abandonment of the oars at the sides of the boat—They are placed at the stern—The steam-boat goes to Burlington, July, 1788—The pipe boiler springs a leak—The boat floats back to Philadelphia—Visit of Briesot de Warville, and description of the steam-boat—The leak in the boiler repaired—Frequent trips to Burlington—The great principle made manifest—Certificate of the services of the steam-boat, by Ewing, Rittenhouse, Ellicott, Matlack, Smilie, Captain Hart, and others—Speed, four miles an hour—Not fast enough for a packet-boat—Several stockholders, disheartened, abandon the Company—Withdrawal of the assistance of Voight—New appeal—An auxiliary company proposed—Names of the members—Distress and destitution of Fitch—Insults offered to him and suffered by him—The Rumseian Society—Dr. Franklin's conduct—Barnes and the Rumseian Society attack Fitch's law in Pennsylvania—Argument before the Committee of the Legislature—Report adverse to Rumsey, and failure of the effort—Attempts made to procure the repeal

of Fitch's laws in Virginia, New York, New Jersey, and Delaware — Second attempt in Pennsylvania also unsuccessful—Fitch visits Shepherdstown, Virginia, in order to procure evidence in relation to Rumsey's experiments—Altercation and quarrels with the townspeople—Fresh proofs procured, etc.—The steam ice-boat 248

CHAPTER XVII.

NEW MACHINERY — IMPERFECTION OF THE WORK — DESTITUTION OF FITCH.

Work on the new boat resumed—Eighteen-inch cylinder—The boat ready for trial in August, 1789 — Difficulties about the condenser—Petition to Congress for a patent—Hall's condenser taken out of the boat, and Thornton's put in—The latter crushed by atmospheric pressure—The new steam-boat tried with Hall's condenser—Propelled as swiftly as in the previous year—The new Thornton condenser tried — The boat is propelled, but not fast enough — Voight's pipe condenser tried—Voight's forcing-pump, to throw water in the condenser—Constant failures—Attention turned to the air-pump—It is enlarged—The engine works better—The boat catches fire—It is sunk, to extinguish the fire — The damage repaired — The steam-boat tried again, and propelled with greater speed than hitherto obtained — The boat laid up for the winter — Distressing and destitute condition of Fitch—A new boiler to be put in the boat—Trouble and disputes with the shareholders about a new condenser—The Directors order a very large one—A complete failure—Fitch's views of the difficulty — A condenser obtained on his plan — Very successful result, April 16, 1790 — The steam-boat tried in a strong north-east storm—Visit to Burlington—Trip in the boat by the Governor and Supreme Executive Council of Pennsylvania — They present the steam-boat with a suit of colors — Speed of the boat, eight miles an hour at slack-

water — The steam-boat run as a passenger-boat on the Delaware to Burlington, Bristol, Bordentown, Trenton, Lambertville, Chester, Wilmington, and to Gray's Ferry, on the Schuylkill—Advertisements of the trips—Description of the steam-boat in the New York Magazine—Rembrandt Peale's account—The steam-boat passes over two thousand miles — Speed, seven miles and a half an hour —Fulton's letter, denying the possibility of propelling a steam-boat *six* miles an hour, 1811—Dr. Thornton's reply 270

CHAPTER XVIII.

COMMENCEMENT OF THE STEAM-BOAT PERSEVERANCE.

The two steam-boat companies consolidated — The stockholders determine to build a new steam-boat, to be named the Perseverance, to be sent to Virginia — A new levy made on the shareholders — Difficulty of collecting the money — Aid sought from members of the Pennsylvania Legislature from the western counties — General Gibson requested to become a partner in building a boat at Pittsburgh—A great storm—The Perseverance blown aground at Petty's Island — Expiration of the time limited in the law of Virginia for the navigation of steam-boats on the waters of that State — The old steam-boat and the Perseverance laid up for the winter — Fitch petitions for a patent under the laws of the United States — Letter to Robert Morris — A trading-house proposed at New Orleans — Curious estimates of the cost of navigating the Mississippi, and of the great profit of steam-boats as compared with other boats — Address to the stockholders of the Steam-boat Company — Fitch becomes interested in the doctrines of Socinianism, or Unitarianism — Formation of the Universal Society — Subjects proposed for essays —Dissolution of the Society 294

CHAPTER XIX.

DISASTERS — LUKEWARMNESS OF THE COMPANY — UNITED STATES
PATENT.

Fitch petitions the Legislature of Pennsylvania for the appointment of Sergeant-at-Arms or Supervisor of Roads — Unsuccessful — Fitch and Voight petition General Washington for appointments in the Mint as Assay Master and Chief Coiner — Voight appointed Chief Coiner — Fitch's application refused — Delay in obtaining a hearing before the Commissioners of Patents — Estimates and proposals submitted to Robert Morris and Oliver Pollock — Agreement made with Aaron Vail to build steam-boats in France, Holland, Germany, Russia, Prussia, Denmark, Sweden, and Switzerland — Proceedings to obtain a patent — Rumsey offers to submit his claims to arbitration, but afterwards refuses — Patents finally granted to Fitch, and Rumsey, all bearing even date. 313

CHAPTER XX.

WORK ON THE PERSEVERANCE — ABANDONMENT OF THE SCHEME.

A permit for the navigation of the Mississippi by steam granted by the Governor of New Orleans — The Company order the engine to be taken out of the old steam-boat, and direct the hull to be sold — Resolution to finish the Perseverance — Delay about collecting money — Fitch draughts plans whereby the new boat may, in addition to the oars, be propelled by sucking in and voiding water, and by ejections of currents of air — Distress of the projector for decent clothing — Work on the boat resumed — The Perseverance ready to be tried — Trouble about the

boiler-case and condenser—New air-pump and condenser exhausted—The funds of the Company all spent—Dispute with Voight about the cattle-boat—Letter to David Rittenhouse—Notice of the Savannah; the first steamship that ever *crossed* the Atlantic—The Sirius—The Great Western—The shareholders in the Company will advance no more money—Efforts by Fitch to raise money on the credit of his lands in Kentucky—Final abandonment of the scheme by the Steam-boat Company—Carnes and Blanchard's balloons—Ambroise's gas-lights—Rev. Nathaniel Irwin—Distress of Fitch—Thomas P. Cope's reminiscences of Fitch and the steam-boat—Fitch meditates suicide—Letter to Jefferson—Deposits his papers in the Philadelphia Library—Recollections of a passage in the steam-boat by Samuel Palmer—Sale of the steam-engine in 1795. 329

CHAPTER XXI.

FITCH GOES TO FRANCE—HIS RETURN—GOES TO KENTUCKY—SUICIDE.

A new method of distillation invented—Fitch sails to France—The building of steam-boats prevented by the French Revolution—Publishes a pamphlet and tables in London, with an explanation of a ready way of keeping a ship's reckoning at sea—Robert Leslie—Fitch returns to the United States—Lives with his brother-in-law, Timothy King, in Connecticut, for two years—Goes to New York, and, by aid furnished by Chancellor Livingston, propels a steam-boat with a screw-propeller on the Collect, 1796—Goes to Philadelphia—Entertains the project of forming a steam-boat company in Kentucky—Goes there—Suits against trespassers—Reminiscences of his career at Bardstown, by Hon. Robert J. Wickliffe

and Hon. Nathaniel Wickliffe, of Kentucky—The plan to form a steam-boat company fails—A model steam-boat made—Death of Fitch by suicide, 1798—His will—Proposition to erect a monument to his memory never carried out.	356
---	-----

CHAPTER XXII.

STEAM-BOAT EXPERIMENTS IN EUROPE AND AMERICA.

Steam-boat experiments in Europe and America by other projectors—Rumsey's boat in Virginia, December 1787, and on the Thames, February, 1793—Patents in England for propelling boats by powers not described—Bourne, 1578—Ramsay, 1630—Grant, 1632—Lin, 1637—Ford, 1640—Marquis of Worcester, 1667—Twogood, 1661—The Chatham horse-boat, with paddle-wheels at the sides, 1682—Allen, 1730—Hulls describes a plan for navigating a boat by steam, 1736—No boat built by him—Difficulty in converting the vibratory rectilinear motion of the piston into a rotary one—Watt's double-acting steam-engine—Perrier and Count Auxiron's steam-boat experiments on the Seine, 1774 and 1775—De Jouffroy's boat on the Saone, 1782—John Fitch the first person who succeeded in making the steam-boat of utility by using it for the transportation of freight and passengers—Experiments, July 1786, 1787, 1788, 1789, 1790, at Philadelphia, and at New York in 1796—The first steam-boat propelled in Great Britain by Patrick Miller and William Symington, at Dalwinston, Scotland, October, 1788—The first practicable steam-boat for useful purposes, the "Charlotte Dundas," built by Symington in 1803—Samuel Morey's steam-boats with paddle-wheels on the Connecticut, Hudson, and Delaware rivers, 1793, 1794, and 1795—Long-

street, of Georgia—Oliver Evans propels the *Eruktor Amphibolis*, as a steam-wagon on land and as a steam-boat on the water, 1804—Latrobe's opinions of the impossibility of steam navigation, 1803—Rooseveltdt's steam-boat experiments—John Cox Stevens' steam-boat on the Hudson, 1804—The Phoenix the first steam-boat navigating the ocean—The New Philadelphia—Robert Fulton a resident of Philadelphia in 1785 and 1786, after Fitch's steam-boat scheme was made known, and the first experiment made—Fulton visits Symington's steam-boat in Scotland, in 1801—Is on board during a trip—Takes drawings of the machinery—Aaron Vail lends Fulton, in France, all the papers, drawings, and specifications of John Fitch, which are retained for some months—Dr. Cartwright gives Fulton a plan of a steam-boat, 1799—Fulton's experiment at Plombieres, 1803—Fulton's steam-boat, the "Clermont," on the Hudson, 1807—The claims of Fulton to originality considered—His appropriation of the discoveries of others—Livingston procures an assignment, or re-transfer and extension, of the law of New York in favor of Fitch—The steam-boat controversy between the citizens of New York and New Jersey, in consequence—A retaliation law passed in New Jersey—Effort to repeal it—The prior invention of Fitch relied upon—Evidence of the usefulness of his boat—The affair made a party question—Repeal of the New Jersey law—Application made by Colonel Ogden, of New Jersey, to the Legislature of New York, to repeal the Fulton and Livingston [Fitch] steam-boat law—Governor Bloomfield, of New Jersey, testifies to having been a frequent passenger in Fitch's boat on the Delaware—The Committee report in favor of repeal, and that the boat of Robert Fulton is in substance the invention of John Fitch—Duer's controversy with Colden in relation to this matter—Law-suits—The Supreme Court of the United States declares the New York law unconstitutional. . . . 373

CHAPTER XXIII.

STEAM-BOAT AFFAIRS IN THE UNITED STATES AFTER FULTON'S
EXPERIMENTS.

New interest aroused in steam-boats — Dr. William Thornton's vindication of the claims of Fitch, 1810 — Reasons why Fitch rejected the use of paddle-wheels — Henry Voight invents a new method of rowing a steam-boat with three banks of oars or paddles, 1809 — Fernando Fairfax claims to have sole right to license the building of steam-boats under John Fitch's patents, 1815 — Roosevelt builds the first steam-boat to navigate the Ohio and Mississippi, 1811 — The eventful first voyage of the New Orleans — The Comet, French's steam-boat — The Vesuvius, Fulton's steam-boat — The Enterprize, French's patent — Captain H. M. Shreeve builds the Washington, 1816 — Lawsuit with Fulton and Livingston — Decision in favor of Shreeve — The Western waters free to steam-boat navigation. 399

CHAPTER XXIV.

PERSONAL MATTERS — CONCLUSION.

Appearance of Fitch — his family emigrate to Ohio — Their descendants — Death of Mrs. Lucy Fitch — Conclusion. . 411

List of Illustrations.

1. The Grave of John Fitch, Bardstown, Ky.	FRONTISPICE.
2. Title-page	VIGNETTE.
3. John Fitch's Model of 1785, with Endless Chain and Floats, or Paddle-boards	131
4. A Section of Chain and Paddles	131
5. Dr. Franklin's Plan of a Pumping-boat, to go by eje- ction of Water	135
6. Dr. Franklin's Plan of a Pumping-boat, to go by forc- ing out Air against Water.	135
7. John Fitch's Steam-boat; Philadelphia, 1786, '87.	178
8. James Rumsey's Steam-boat; Virginia, 1788	212
9. Section of Pipe-boiler	228
10. Section of Pipe-boiler	229
11. Section of Pipe-boiler in its Furnace	229
12. Double-cylinder Boiler, Grate, and Furnace (Henry Voight's)	232
13. James Rumsey's Steam-boat, English Patent	254
14. James Rumsey's Steam-boat, English Patent	254
15. Cylinder, Condenser, and Air-pump of Fitch's Steam- boat	275
16. Cylinder, Condenser, and Air-pump of Fitch's Steam- boat	276
17. Dr. Thornton's Condenser, Cylinder, and Air-pump (<i>fac-simile</i> , from pen-and-ink drawing)	279

xxiv LIST OF ILLUSTRATIONS.

18. John Fitch's Condenser, Cylinder, and Air-pump (<i>fac-simile</i> , from pen-and-ink drawing)	280
19. John Fitch's Steam-boat ; Philadelphia, 1788, 1789, 1790	284
20. John Fitch's Screw-propeller Steam-boat on the Collect, New York, 1796	362
21. Fitch's Model Steam-boat ; Bardstown, Kentucky, 1797, 1798	368
22. The Charlotte Dundas, William Symington's Steam-boat ; Scotland, 1801	378
23. The Eruktor Amphibolis ; Oliver Evans, Philadelphia, 1804	381
24. The Clermont, Robert Fulton's Steam-boat ; New York, 1807	390
25. Henry Voight's improved Triple Paddles ; Philadelphia, 1809.	403

THE LIFE

OF

JOHN FITCH.

CHAPTER I.

INFANCY AND BOYHOOD.

FAITHFULLY and thoughtfully written, the narrative of the course of existence of every man may have something in it to benefit those who come after him. The general landmarks of life, for those who reach adult years, are the same. Birth, education, employment, love, marriage, and death, are set up as tokens at the great boundaries; but the intermediate fields are too often passed over without special interest. Forgetfulness spreads oblivion over transactions which, during the brief hours when they were transpiring, excited ardent interest, noble emotion, or base passion. Hope looks forward and never turns back. It is Memory's task to dwell upon the vanishing hues of the past; but, even as she views them the colors grow fainter, gradually fading until for ever lost. The remembrances of the living are treacherous, but Death buries cotemporary knowledge with the bodies of those who possess it. Hence it is that History becomes more unreliable as time advances, and that events, well

known to the men of a certain era, become, in after years, vague, mysterious, or misunderstood.

It is with some hope that the veil which has so long obscured the merits of an unfortunate and ingenious man, shall be lifted, that these pages have been written. Justice to the memory of one whose conceptions and anticipations far exceeded the shallow wisdom of his cotemporaries, demands that, on the roll of those who have benefitted their country shall be placed the name of John Fitch, the successful inventor of the steamboat, who demonstrated the merits of his invention beyond the power of denial. The record of his trials and sufferings is now to be placed before a generation able to appreciate his qualities. The invention of the steamboat has been a matter of importance to the civilized world. It is our aim to show that such a machine was not only *suggested* in the United States, but that it was brought to such *practical perfection*, as to be used for purposes of freight and passage many years before it was usefully employed in any other country, and many years before the luckier but less original demonstration, by the adapter of the ideas of others, Robert Fulton.

Very much of the story of the life of John Fitch was written by himself, in compliance with the desire of his friend, the Rev. Nathaniel Irwin, of Bucks County, Pennsylvania, who, during the course of an acquaintance extending through several years, had always taken an interest in the fortunes of the ingenious and struggling enthusiast. In the first page of his written autobiography, Fitch testifies his attachment to Mr. Irwin, in the following quaint manner :

TO THE WORTHY NATHANIEL IRWINE, OF NESHAMINEY.

SIR — Was I a Bigott in your Beliefs and doctrines, which you so zealously; and with the greatest ingenuity that I ever heard from a Pulpit, weekly support, I should think that the word Reverend would bearly do you justice, and for fear if I used that word, it might be imputed to the function of a Christian preacher, I omitted it; but, Sir, you may be assured that I revere you more than any man, but not because you are a Christian Preacher, but because I esteem you one of the most valuable citizens of Pennsylvania, and have frequently felt a secret Pain that such an exalted Genius should be confined to the Piti-ful business of Neshaminy Congregation, whilst many of the first offices of Government are filled by those much less de-serving.

The last conference I had with you, Sir, you requested a detail of my life. I, sir, would not have gratified even Mr. Irwin him-self, in this, were it not for several reasons: the first is, I have already made myself so noticed that I never can in future conceal myself; and knowing, Sir, that there is every malignant disposition, as well as friends, to Laudable endeavours; and the curious of this world will hardly be satisfied without some story to tell, if they have to frame stories out of their own brain re-specting me; but a Principle reason is this — my life sir has been filled with such a variety of Changes which will afford such useful lessons to mankind, I think I should hardly do my duty which I owe to my fellow men, was I to suppress it.

From that autobiography, commenced Jan. 12, 1790, which was afterward deposited in the Philadelphia Li-brary, we take the greater part of the curious and interesting facts which will be related in these pages.

The Fitch family were supposed, by the descendant whose eventful story is about to be told, to be of Saxon origin. Thomas Fitch, the great-great-grandfather of John Fitch, became by descent the proprietor of an estate near Brantry [Braintree] in Essex, England,

and after, it is presumed, an honest and peaceful life, died, leaving five sons. Those descendants left England shortly after their father's death, and emigrated to New England, bringing their mother with them. Joseph Fitch, the great-grandfather of John Fitch, purchased one-twentieth part of the township of Windsor, Hartford County, in the Province of Connecticut.¹ He had three sons — Joseph, Nathaniel, and Samuel. The two latter died unmarried, after having wasted their estates. Their brother Joseph patterned after their improvidence, but did not adopt their views as to the benefits of celibacy. He married, had two sons, Joseph and John, and died insolvent, leaving his children to the charity of the world. Joseph Fitch, the father of the subject of our biography, was brought up in an industrious and affluent family settled at Hartford, where he was taught to read, write, and cipher. His studies were of such a nature that he acquired a taste for astronomy, mathematics, and natural philosophy, in none of which he attained any brilliant proficiency. In due time he married Sarah Shaler, of Bolton, an active, enterprising, good woman. During her life there were born to this couple three sons and three daughters.

John Fitch was the fifth child, and was ushered into what to him was a world of misfortune, on the 21st of

¹ In Holmes' *American Annals*, Vol. I., page 378, it is said :— "The township of Norwich, in Connecticut, having been purchased [1660] of the natives, the Rev. James Fitch, with the principal part of the Church and congregation, removed from Saybrook, and planted that town." It is probable that this James Fitch was a brother of the Joseph Fitch here spoken of.

January, 1743, old style. The house where his parents resided was situate upon the boundary line between the townships of Windsor and Hartford; but, as the greater part of the dwelling was in Windsor, John always understood that his birthplace was in the latter. When the boy was about four years old he was sent to "a dame school," maintained by a tax on the residents of the township. Mrs. Rockwell, the mistress, found in young Fitch no inapt scholar, and during the first summer he learned to spell such words as "Commandment" and "Jerusalem" with facility. Whilst at this school he met with his first great misfortune. His mother died when he was about four years and eight months old. The children of the family then were Joseph, Augustus, Sarah, Anne, John, and Chloe. The bereaved father soon found the management of this progeny to be a task which he was incompetent to discharge with propriety, and he accordingly turned his attention to the serious business of wooing a second wife. His choice was determined by prudence, and it fell upon Abigail Church, of Hartford, a maiden lady, who was "an orderly, easy-tempered, good woman," and "had some little property."

During the time of the courtship, John was kept at school, where his advancement was satisfactory. His father was necessarily and frequently away from home whilst engaged in "paying attentions" to Miss Church, and the house, during such expeditions, seems to have been left in the charge of the children. Upon one of those occasions, after John had returned from school, it being near the dusk of the evening, he and his youngest sister, Chloe, were alone in the house.

Augustus and Sarah were in the barnyard milking the cows. Chloe had some important little secret to tell her brother — having received some gift during the day which she wished to show him. Lighting a candle, she went with it to the far side of the room, and while searching for the present, unfortunately set fire to two bundles of flax which were upon the floor. The inflammable material started into a blaze. Little John seeing it, ran and seized one of the burning bundles, which was so heavy that he could only carry it by resting it against his knees. He conveyed it in this manner to the chimney, and cast it down on the hearth, his hands being sadly burned, and his hair on fire. The latter he quenched, and then seized the second bundle, which was also ablaze, and put it on the hearth, where he tramped out the fire until it was extinguished. Whilst he was engaged in this heroism, his sister, affrighted, had fled to the barnyard, where, in her agitation, she must have said something which was misunderstood. Whilst little Johnny was yet smoking, his hair nearly singed off his head, his hands and feet blistered and smarting, and his eyes full of dust and cinders, his brother Augustus rushed in, and, without asking a word of explanation, fell upon the young hero, boxed his ears and beat him most severely. This was the reward for his bravery. He felt the injustice which was done him, and, on his father's return, made complaint, but received no redress. This incident seemed to him in after years to be the first in a career in which his efforts to do good were misunderstood and punished, instead of being rewarded. At a later period, after having labored to convince his countrymen of the

value of the steamboat, and receiving nothing but distrust, indifference, and the punishment of poverty and neglect, he reverted to this childish occurrence, as if to show that a malignant fate had pursued him almost from his infancy. "This, sir," says he, addressing the Rev. Mr. Irwin, "being what I may call the first act of my life, seemed to forebode the future rewards I was to receive for my labors through life, which have generally corresponded exactly with that."

About two years after the death of the mother of John, his father having won the affections of Miss Church, brought her home and established her in the position of wife, and ruler over the destinies of her step-children. The change, as it often happens, soon produced some alteration in the family. Joseph and Augustus were apprenticed to learn trades; Sarah was married at sixteen years of age; Anne was most of the time with her uncle, John Fitch, in Massachusetts; so that, generally, there were only at home, the father, his wife, and John and Chloe. After Joseph had been away for a year he returned. He had learned to be a cooper, and set up that business at his father's house. John was permitted to go to school until he was about ten years of age, being subject, however, to many demands for his services, and being required to relinquish his studies during busy seasons, whenever his father thought it would be more for his benefit to employ his son at home. Joseph Fitch was a stern, close man, who lived in rigid economy, and had but little liberality of principle where the happiness of others ought to have been consulted. He was very economical, and spent but little upon self-indulgence.

His son says of him, however, in a tone of thankfulness, or admiration, it is difficult to determine which, that he had "always plenty of victuals in the house," and was "never out of cider but two weeks," during all the time that he lived with him. Little John became at school "quite a scholar." Before he was ten years old he "could say the New England primer all by heart, from 'Adam's fall' to the end of the catechism." There was at his father's house an old copy of Hodder's arithmetic, which he got hold of and studied without assistance. He had a natural aptitude for figures, and when nine years of age had mastered addition, subtraction, multiplication, and division, and could tell "how many minutes old" he would be when he reached ten years of age. He had now become a great enthusiast, and describes himself as "almost crazy for learning." Yet his father took him from school and put him to work, although he was so small that he could not swingle more than two pounds of flax, or thresh more than two bushels of grain in a day. For this "pitiful, trifling labor" he was deprived of the benefit of education, which he looked upon as a serious piece of injustice. Yet, he observed, in reference to his father's conduct, "There was a great deal to plead for him. He was educated a rigid Christian bigot, a most strenuous Presbyterian, and carried it to such excess, that I dare not go in the garden to pick currents, or in the orchard to pick up an apple on the Sabbath, and he probably thought that the extent of his duty towards me was to teach me how to read the Bible, that I might find the way to heaven, and when he had done that he felt perfectly easy, and if I could

earn him 2d per day, it ought not to be lost." Still his father did not prevent him from studying at home. He was at his book mornings and evenings, was a very zealous student, and got through Hodder as far as "Alligation Alternate."

When he was about eleven years old he heard of a book which would give him "information of the whole world." This treasure was Salmon's Geography. He asked his father to buy it for him, but the investment was greater than his frugality would allow him to indulge in. In this emergency John cast about for some means to raise money sufficient to purchase it. Having hit upon a plan, he requested of his father permission to plant potatoes on some headlands on the farm, and obtained the desired license. On a training day, when all others who had time were enjoying themselves at the muster, this little farmer devoted his holiday to the task of digging up the ground and planting his stock. He cultivated this small patch through the season, at noon, and after his regular work was done in the evening. The result of the adventure was the growth of several bushels of potatoes, which were sold in the fall for ten shillings. A merchant in the neighborhood, who was going to New York, engaged to buy the coveted book, but when he purchased it the cost was twelve shillings, leaving the poor little fellow two shillings in debt, a vast and troublesome obligation; in addition to which his frugal father called upon him to return potato-seed equal to the quantity originally loaned him to plant. Good luck soon enabled him to discharge this heavy debt. He studied his prize with intense energy, and in a short time was "the best

geographer, according to Salmon, which Connecticut could produce." No question could be asked him about any nation, its situation, population, boundaries, chief towns, &c., which he could not answer "according to Salmon."

Having now attained some geographical knowledge, and having been instructed by his father in surveying, as far as he himself understood it, the young Fitch began to have considerable conceit of his abilities. A very amusing exemplification of his self-sufficiency had been given before that time. Among the neighbors of the Fitch family, was his Excellency, Governor Roger Wolcott, father of Oliver Wolcott, afterwards a signer of the Declaration of Independence, and governor of Connecticut. He had a piece of meadow land adjoining the Fitch farm, and sometimes during mowing time, would come beneath the shade of the trees where the laborers were resting. John was a pert, forward, smart little boy, and the governor having some pieces of land to apportion off, requested the father that he would allow his son to carry the chain for him while making the surveys. The youngster was hugely flattered at this honor, and his good opinion of himself was much enhanced by the deference which Governor Wolcott paid to his suggestions. He consulted him upon all doubtful points, and seemed to adopt all his recommendations without hesitation as to their correctness. They surveyed several small tracts lying upon the Podunk river, a very crooked stream. John, being expert in "Hodder," was ready in his calculations of the parts left out by the tortuous character of the watery boundary, and in estimating what

ought to be taken in to reduce the whole to square measure. As a specimen of the operations of the boy of eleven years old, with the great man who had honored him with his confidence, the following is told. "He asked me," said Fitch, "how we should go square across the end that we did not go out or in, but square off with the lines the first run." I instantly told him thus:—

"As we had a four pole chain, that we would begin at the bush at the corner, and measure off two poles upon the trail that we had made through the grass, and for him to hold one end of the chain at that place, and I would walk round with the other end through the grass, and then he should hold the other end at the bush, whilst I trampled the grass in another circle, and one pole from where the grass was trampled both ways would be a square from the first line. The old gentleman indulged me in this experiment, but what his views were I don't know, but I did it on the same principles that I now raise a perpendicular on paper, but did not know at that time a single geometrical problem, and he laid off the end line according to my perpendicular. There was another thing which has ever been a mystery to me. We had measured off one piece for one Isaac Morton, which was to contain one acre, and it happened to be just thirty poles in length. He asked me 'how wide we should go to make one acre.' I readily answered, 'six rods.' He seemed to doubt, or rather question with me if I was right. I positively asserted that I was, and told him that '40 rods long and 4 rods wide was an acre, and 20 rods long and 8 rods wide was an acre, and that 30 and 6 was a medium between the two.' The old gentleman laid it out agreeably to my direction. In this I honestly cheated him, but did not know it till some years after. I can impute it to nothing but an oversight in him, as his abilities as a surveyor cannot be doubted."

The job of surveying thus commenced, was not completed upon that day. The Governor left his chain

with little John, and gave him directions how to lay out some other pieces of ground, which task was completed by the young surveyor entirely to his own satisfaction. When the Governor came to the house of the father to receive the chain, the boy proudly produced it with the notes of his work, and was not unreasonable in expecting some remuneration for his labor ; but the Governor coolly received the chain as a matter of right, placed it in his saddle-bag, and without deigning to notice his fellow-laborer, or even to thank him for his trouble, rode away with much dignity. This was a great disappointment to the young associate ; but he solaced himself with the thought that he ought to have expected such treatment. Gov. Wolcott was a prudent man, and very careful of the means which he possessed. This disposition had already been proved by an incident which happened some time before, the memory of which was preserved in the Fitch family, as a perpetual monitor of the niggardly disposition of the Governor. At that period, it was the custom, in Connecticut, to make the mending of roads a township affair, and the assistance of all able-bodied residents was demanded at certain times for that purpose. It was a constant practice of the road-repairing parties to keep a sufficient store of New England rum for the solace of themselves and travellers. The latter were always requested to take a drink whenever they reached the place where the road-menders were stationed. It was a portion of the etiquette of such occasions, that the invitations should always be accepted ; and it was equally a trait of good manners to recompense the voluntary hosts for the liberality which they thus exer-

cised. It was a rare thing in any one to disregard such requests; and it was considered mean for a person to pass on without making some contribution to replenish the bottle. It once happened, when Joseph Fitch, with many others, were mending the highway near the farm, that Gov. Wolcott, majestically arrayed in scarlet, was passing along on his way to Hartford. The bottle was tendered him, and he did not refuse it, but, taking a generous dram, recompensed the expectant hosts who looked for a liberal donation, with a single copper. The circumstance so chagrined Joseph, that he was determined to make visible commemoration of the paltry gift. He took the farthing to his father's house, and punched a hole in it. He got a post and set it firmly in the ground on the edge of the road; and, procuring a scarlet rag to make it more conspicuous, nailed the copper and the rag to the post, as a memento of the Governor's avarice, and as a hint to other travellers that they were expected to pay more liberally for their rum. "This," said John Fitch, many years afterward, "was a mean way of getting money, but the Governor took an improper way to suppress it, and one which was very imprudent in the first officer of the government." The circumstance certainly proved that he was very careful of his wealth, and it explained very satisfactorily the reason why the boy, who had been so useful to him in surveying, received no pecuniary acknowledgment.

The situation of the lad at this time was very uncomfortable. He had a strong desire to acquire knowledge; but with this disposition there was little sympathy. His father and brother were more anxious that

he should work in the field than go to school and study. His labors were severe, and so heavy that he ascribed his weak and stunted condition to them. He was small boned and diminutive—a condition of body which continued until he was about eighteen years of age, and then he “started up all at once,” (without giving nature time to consult herself,) into a disproportioned shape. When he was about thirteen years of age, his father so far relaxed his stern demands upon him for labor, that he permitted him to go to school for about six weeks. In that time he got through the arithmetic, and had learned all that the school-master could teach of mathematics. The latter suggested that he would instruct the boy in surveying, if the proper instruments were procured. The demand for the necessary outlay was not agreeable to the father of John; but, after earnest solicitation, he consented to make the advance, he went to Hartford, and procured a scale and dividers, which were received by his son with warm expressions of gratitude. With these simple implements he became proficient, in two weeks, in what was then called surveying in New England. But he learned “nothing of logarithms, or of calculation by latitude and departure, but only geometrically.”

This was the last opportunity of studying allowed him by his family. He wished to perfect himself in the science of astronomy, but that taste met with no encouragement. Foiled in his most ardent wishes, he became at length discouraged, and, abandoning his books, fell gradually into the ways of boys of his own age, and devoted to play such hours as were permitted him to abstain from labor, and which formerly he had

diligently dedicated to study. When he was about fifteen years old, his father hired him out one winter to Roswell Mills, for eleven shillings a month. Mills kept a large country store at Simsbury, in Hartford County. The principal article of payment for the goods sold to customers was pork, of which large quantities were received. Here the boy served faithfully, and acquired the friendship of Mr. Mills, who, afterwards abandoning store-keeping, took up the practice of the law at Windsor.

At the age of seventeen, John became heartily disgusted with the farm labor which had been imposed on him. He was desirous of obtaining some other employment, but was undecided whether he should go to sea, or become an apprentice to learn some trade. On a day, when all the residents of the parish, who were supposed to be able to work, were invited to assist in raising a new and stately meeting-house at Windsor, Fitch, who was affronted by not receiving an invitation to participate, procured a horse and rode over to Rocky Hill, on the Connecticut river, at which place a number of coasting vessels were usually to be found. Here he made an agreement with one Captain Abbott, to go with him upon a voyage to New York. Returning home, he secured all the money which he possessed, about three shillings, and, informing his father of his determination, was presented with twenty shillings and his blessing. His experience on board the craft belonging to Capt. Abbott was not of a nature to add to any happy anticipations which he might have had of the pleasures of a life upon a vessel. The mate, one Starr, treated him with roughness. He would not per-

mit him to sleep at night in a berth, although some in the craft were vacant, but compelled him to slumber on a chest much shorter than he was, and without covering. The next day he was abused and beaten by this ruffian, and at night again banished to his chest. This treatment was sufficient to admonish him as to what he might expect during the voyage; and, as the vessel still laid at Rocky Hill, he quitted it on the second day, and engaged himself with one Capt. Ebens, who was bound for Rhode Island. By the latter he was treated with some humanity, and had nothing to complain of. They met with a severe storm in Providence, much to the discomfort of the young voyager, who, during its continuance, had no sanguine hope of safety. Capt. Ebens went to Providence and Newport, and after having been away five weeks, John returned to Rocky Hill, and sought his father's house.

CHAPTER II.

APPRENTICESHIP. — MANHOOD. — MARRIAGE.

PLEASED with the experience gained by his voyage, the youth was undecided whether to go sea again, or to endeavor to procure a place at which he might learn a trade. Whilst the settlement of this question was yet in abeyance, he was sent to mill with a load of grain. At the cross-roads he met Benjamin Cheany and wife, who told him that they wanted just such a boy as he to learn the clockmaking business. The idea was agreeable to him, and a few days afterward he called upon Cheany in reference to the subject. The result of the conference satisfied him that his services were wanted to cultivate the farm rather than to assist in the workshop. This was not what he desired; but, being anxious not to miss the opportunity, he declared that he would have no objection to work upon the farm some little time, if the precise period was specified in the indenture. Cheany proposed that six months in every year should be given to farm labor. This was not what should have been granted; "but," said Fitch, "being too conceited that I could learn a trade in a short time, if I only had the first principles of it, and an expectation that my master would not call me off half that time from my trade, I agreed to his proposal."

Liberal as this concession was, it was not equal to Cheany's desire, as his apprentice soon discovered.

The indentures were executed when John Fitch was about eighteen years old, and by their terms he was to have instruction in clockmaking during seven months of each year. It was one of the stipulations of the contract, that the boy should find his own clothing. This proposition had caused some difficulty during the family consultation. His father and step-mother objected to such an agreement, and the whole business was in danger of failure. In this dilemma, Timothy King, of Windsor, who had married Sarah Fitch, determined to aid his young brother-in-law. He agreed to furnish John with clothing, trusting that he would pay him when able. A new trouble arose in consequence of the father of John desiring his services during three weeks of harvest time. This demand occasioned a serious dispute, which nearly broke off the arrangement, and was only quieted by Cheany's yielding to the request. The youth was now installed in his place with this couple, whose dispositions were not very liberal. Cheany had many oddities, and was in person deformed from the effect of rickets in his youth, which, among other marks of its power, had left its victim with an immense head, double the usual size. The mistress was weak and penurious, and kept the apprentice in a state of semi-starvation, his appetite seldom being fully satisfied. As an example of the household economy of this prudent couple, Fitch records an anecdote :

"In my second year my master bought four sheep, and from the flesh of one of them my mistress made some broth in a large iron pot, with beans. It was as good a pot of broth as perhaps was ever made in the parish."

Of this he ate heartily for some days, always twice, and occasionally three times. After persevering with this food for a week, he became somewhat tired of it, and sighed for variety. He now, hoping to get rid of it, complained that it was "too salt." This fault was one which the liberal Mrs. Cheany was willing to correct; and she accordingly added sufficient water to visibly increase the quantity. Such a favor was not desired by the apprentice; but he continued at the soup with a stout heart until it was nine days old: "but finding," said he, "that no one eat it but myself, and that it rather increased on my hands, I got almost disheartened, and on the tenth day eat but a very little, and on the eleventh day eat none, but a piece of dry bread only. On the twelfth day, after many complaints, and expatiating on its loss by its being thrown away, it was finally condemned to the hogwash, which sacrifice I thought but just; nor did I ever think that the gods were offended at it."

It was not the desire of Cheany that his apprentice should really learn anything about the business specified in the indentures. He wanted him to labor in the field, and in the course of two years he had succeeded in getting from him more work of that kind than by the agreement was to have been done in three years. Beside that, his business was but small, his labors being principally in repairing wooden clocks. Even of this branch of the trade he contrived to keep John in ignorance. He paid but little attention to the indentures, and kept the lad "almost the whole of the time at trifling, pottering brass work," and the latter was, when he left him, "almost totally ignorant of clock work."

During the time he was in his house, young Fitch kept a regular account of the days and half days during which he was called out of the shop into the field. He showed this account to his master at one time when he was desired to leave something which he was doing, to labor on the farm. Cheany was surprised at the statement, and was much affronted at it. After John had been with him two years and a half, Benjamin, finding that he would work no more in the field, having exhausted that term of service, suggested that his brother Timothy, who followed brass and wooden clock making and the repairing of watches, would be a much better person than himself to teach the youth all the branches of the trade, which he wished to learn. This suggestion was listened to, and arrangements were made to transfer the young man to the new place. He was now over twenty years of age, and, although he had spent thirty months under the *instruction* of Benjamin Cheany, he did not know how to make either a wooden or brass clock. It was with a hope that he would be enabled to make up for lost time, that he went to his master's brother. It was agreed that he should stay with him for a year; and, as he would be of full age before that time, his father gave a bond to Timothy Cheany that John would serve faithfully after he was twenty-one years old. This instrument was executed June 8th, 1763. Fitch was to be taught brass and wooden clock making, and watch making. The wife of Timothy Cheany was a sister of the wife of Benjamin, and was "a pretty, sensible, good kind of a woman." The first disagreeable experience which the new apprentice encountered was in reference to his

food. In this family the abstemious person was the master. "He was a very small feeder. He seldom or ever sat down without exclaiming against gluttony. The family always eat as "quick as him, but had victuals to command. When Cheany was through, he started up and returned God thanks for what we had eaten; or, I believe I may say, because I had eaten no more." In this place the subject of our history learned to eat very fast, so that he was after a while able to "nearly get a bellyful between prayers."

The hope which had been indulged that he might here at least acquire a knowledge of the branches of trade which he was desirous of learning, was cruelly disappointed. He was kept at brass work from early sunrise to ten o'clock at night, but he was not taught anything relating to clock work or watch work. In reference to the manner in which he was treated, he said, many years after: "I never saw a watch put together during my apprenticeship. When I attempted to stand by to see him put one together, he would order me to my work. I seldom got to see any of his tools for watch work; they were kept locked up in his drawer. He never told me the different parts of a watch, and to this day I am ignorant of many parts by name. He never permitted me to turn a piece of iron or brass in his shop." In eight months' service Fitch had not been taught how to complete a single clock. He had commenced one, but was not allowed to finish it. He worried through these months of injustice until after he was twenty-one years of age, when he had a controversy with Timothy about the treatment which he received. A quarrel ensued. Fitch threatened to

seek redress by law, but, finally, it was agreed that he should be released from further service, on payment of £8. He set out to his father's house to find the means to secure the payment of this amount. The feelings of the young man as he trudged homeward may be faintly imagined. He had "learned his trade," according to the belief of the world, but he knew nothing. He was a clockmaker who had never made a clock, a watchmaker who had never taken a watch apart or put one together, and who had never seen the tools necessary for such delicate operations. The portion of his life most necessary to enable him to get forward in the world had been utterly wasted. No wonder that his heart was heavy as he thought of this injustice. He said, "I saw the cruelties with which I was treated—the wickedness of the man—the dilemma which I had brought myself into by running myself in debt three years, to wear out them clothes for monsters, and £8 more added to it, and I sat out for home and cried the whole distance, and doubt not but nearly as much water came from my eyes that day as what I drank."

When he got home he was ashamed to represent the case as it really was, for fear of being sent back. He therefore concealed the extent of his ignorance of his business, and represented himself to have been badly treated. His brother-in-law, Timothy King, and his brother, Augustus, gave their joint note to Cheany, and took up the bond of their father.

At the age of twenty-one John Fitch now found himself at liberty, having but a limited knowledge of brass working, and without skill as a clockmaker or

watchmaker. His clothing was scant, he was in debt £20, and could not work at journey-work in the trades which he was reputed to have learned, for fear of showing his ignorance. He resolved to set himself up as an artificer in small brass work; but how was he to obtain capital? At that time, one Reuben Burnham was courting his sister Chloe. This young man lent him twenty shillings, and with that small capital and some credit, he commenced business. His father, with more liberality than could have been expected from him, offered him board and lodging for one month without charge; and thus furnished, the young and inexperienced brass-founder went to work. He succeeded admirably, he thought, and in two years had paid all his debts and was worth £50.

He had also, in that time, learned something about the construction of brass clocks. Timothy Cheany had stopped at his shop once, whilst on an errand to clean a clock in the neighborhood, and either in a spirit of irony or of unwonted good-nature, offered to permit Fitch to go with him and see how it was done. This proposition was declined, but shortly afterward hearing that Roger Wolcott, a grandson of Governor Wolcott, had a clock which was out of order, our brass-founder went to him and requested that he might be allowed to take it apart. He candidly confessed that he never had done work of that kind, but declared that he had confidence in his ability to clean and put it together in good order. Mr. Wolcott consented to this proposal, and Fitch, having taken the clock apart, succeeded, after much trouble, in getting it together rightly, and it went very well. After that attempt he undertook

to clean brass clocks whenever he could get an opportunity. He made some blunders at first, but after a time become tolerably proficient at such work.

At that time he was induced to enter into partnership with two young men having less capital than himself, in a scheme for manufacturing potash. Fitch supposed that he could manage his brass work himself, and entrust the potash works to them. He soon discovered the unpleasant situation in which he was placed. One of his partners could not be relied upon to do the work, and the other had no money to advance upon his share. Under these circumstances, Fitch was compelled to purchase the interest of both. He was entirely ignorant of the method of manufacturing potash, and to understand it, he neglected his brass business and went into another potash house at small wages to learn the process.

The place for the potash works was badly chosen. It was twenty-five miles from the house of his father, and in Hartland township, which was not inhabited by more than thirty or forty families. The ashes supplied by them was not sufficient; the gatherings in the district did not exceed one thousand bushels in a year.

While he was at the potash works he boarded with one Beamen, who had married a daughter of Mr. Roberts, of Simsbury. During his residence there, Lucy Roberts came to visit her sister, and Fitch became acquainted with her. She was several years older than he, "and rather inclining to be an old maid." These disqualifications were not much thought of by the subject of our biography, and after a short courtship of six months, in which he had "but little oppor-

tunity of learning her character," he was married to Lucy Roberts on the 29th of December, 1769. He said of her afterwards, "she was deaceant woman enough, and no ways ugly, but delicate in her make." Her father was a man of some repote, and had a considerable estate. On the 3d of November, 1768, a son was born to this couple, who was named Shaler Fitch.

The potash works had been carried on in the meanwhile to little profit, and after it had ceased to be worth attending to, Fitch resolved to build a shop for brass work, which, as his views were rather magnificent, was three times more extensive, and expensive, than it should have been. He became embarrassed in consequence, but managed to disentangle himself after some effort. Meanwhile his family affairs were most unhappy. His wife was high-tempered, and although he avers that he never gave her an angry word, he was continually subject to her displeasure. He became convinced that he could not live happily with her, and resolved to leave her. This was not the hasty passion of an hour, but the cool determination of six months of endurance, during which period he repeatedly told his wife, that unless she restrained her temper he would separate from her; which intimations she treated with ridicule and scorn. He brought his business to a narrow compass, and left his affairs in a good condition for settlement. Not desiring to increase his family, he was compelled to depart sooner than he had intended, leaving some of his business unfinished. In reality, his wife was enciente with a daughter, afterwards born, who was named Lucy. He averred that he did not

suspect this fact, and assured his friend, Mr. Irwin, in after years, that if he "had known it" he would never have left her, but would have worried through life "as well as he could."

On the 18th of January, 1769, the unhappy husband left the residence of his wife forever, having no fixed place to which he intended to proceed, going away with a small supply of clothing, and with less than eight dollars in his pocket. Twenty years afterward, on relating this fact to Mr. Irwin, he said :

This day, sir, was the most dismal of any I ever saw ; to set off from home and leave my friends and relations, neighbors and acquaintances, and a child which I valued as much as my own life, and to go almost bare of money I knew not where, nor what distresses might come upon me when friendless and among strangers ; and although I had almost every day seriously told my wife that I would do what I did, for six months before, she never would believe me, nor affect to believe me, till about an hour before I sat out, when she appeared affected and distressed, and in the most humble manner implored my stay, and followed me about half a mile, where I stopped. This added double grief, and I really felt an inclination to try her once more ; but my judgment informed me that it was my duty to go, notwithstanding the struggles of nature I had to contend with.

CHAPTER III.

THE SILVERSMITH—THE GUNSMITH.

AFTER parting with his wife, Fitch plodded onward despondingly. During that afternoon he walked eight miles. The next morning he went on toward Albany. When he arrived at Pittsfield (now a township of Otsego County, New York,) he resolved to stay there for a time. He worked for three months, merely maintaining himself, and gaining nothing beyond his subsistence. He then went on to Albany, where, seeing no chances of obtaining work, he resolved to go to New York, and, if possible, procure passage to Jamaica, where his uncle Timothy Shaler, a man of considerable fortune, was settled at Savannah la Mar. His route was by land, and he cleaned clocks at the farm-houses which he passed on his way, and by that means reached New York better off than when he left Albany. He was disappointed in obtaining a passage from that port to Jamaica, and he determined to go on through New Jersey.

Elizabethtown Point was the place to which he had first determined to go. He walked along under great depression, and about two miles before he reached his proposed destination, stopped at a house where he obtained lodging and went to bed in keen distress. He thought of his child, his parents, and relations, and what might ensue if sickness should overtake him. After a restless night, he arose, and once more sought

the road, undetermined what he should do. He was inclined to return to New England, but the people of the tavern where he had lodged had been informed whence he came, and whither he was going. He was ashamed to retrace his steps, while they were wondering at his seeming irresolution. He thought he would get out of the sight of the house, and return by a circuitous course, avoiding the tavern and gaining the road beyond. His mind was not resolved upon anything, and he walked on until he reached the village of Woodbridge, now a part of Rahway. He had carried a heavy bundle of clothes, and was fatigued. He stopped before the house of one Benjamin Alford, and determined to seek refreshment there. Passing through the gate and a little garden, he heard a noise within the dwelling. He had a mind to withdraw, but going up to the door, which was in two parts, according to the fashion of the time, he knocked against the lower half, and looked into the room through a space left by the upper half, which was open. He saw an old man sitting in the chimney corner, with his head against the back, smoking a pipe. There was an old woman and a young one in the room. The former was in high wrath, and scolding the old man with loud invective. This employment did not cease upon the appearance of the stranger. No notice was taken of him, and with a confidence which he soon regretted, he ventured to walk in. His adventure there, and the reception he met with, were afterwards related in a letter to his friend, Roswell Mills, in the following atrocious doggerel lines, which the reader will only pardon because they were the composition of the man, and the very

best evidence that could be adduced that he was not born a poet :

SIR — Now I will a story tell, which does upon me centure :
Near Woodbridge Town there I did meet a true but strange adventure.

It was a hot, long, melting day, and I grew almost weary ;
To a small house I did repair, thinking a while to tarry.
I knocked and entered in the door, without either's permission,
And when one moment's space I found, I spoke without commission.

Said I, " Good woman, tell me why that you live so uneasy —
Come try some other plan to live, and see if it wont please ye ?"
" No, faith," said she " no other plan shall ere come in my notion ;
For since he has a villen grown, this shall be his Portion."
" Well, then," said I, " now for your peace, let both consent for parting,

That the remainder of your days be not so full of smarting."
They both consented to the thing, but she was for full hire —
One-half of all she did demand, before she would retire.
Then my judgment soon was made (it was without permission),
That the whole I'd rather give, than live in that condition.
Then quick her eyes like lightning streams began to be a flying :
I was apprized of the same — methought I was a dying.
Then quick a Brand out of the Fire toward me was coming,
And with my Pack I made a shield, and hindered it from humming.

Then soon I made toward the door — sure I was not for staying,
And when I made into the street, she followed me close after —
Had any one but seen the sight, I'm sure 'twould made a laughter.

The Brand soon coming 'bout my ears, and I for it was dodging,
Which made me fly to quit the place, and seek for better lodging.
If you think my courage was not good, permit me, sir, the favour
To tell you true and honestly, I'd rather run and leave her.
If you will send a hero brave that will make her for yealding,
One Guiney I will freely give, and pay the cost of healing.
But the last which I have said, I think is something jocking,
For woman kind can't be subdued, without a little choaking.

This adventure was a most unfortunate one in its effect upon his mind. Subdued by his situation and his lonely condition into a state of feeling in which his heart yearned for his home, the fierceness of the virago whom he encountered reminded him of the contentions which had driven him forth from his family. He was now resolved not to return to New England, and he offered himself as a laborer on a plantation; "but being slender made, and having the appearance of one considerably advanced in the consumption," he could find no employment. At Brunswick he endeavored to enlist in the king's service as a soldier, but he was refused for the same reasons which had caused his rejection by the farmers. He left New Brunswick for "Greggstown on the Millstone" (probably the present village of Millstone), where he got a clock to clean. The next day he went to Princeton, where he cleaned two clocks.

About the middle of May, 1769, he reached Trenton. Here he obtained the sympathy of one Matthew Clunn, a tinman, who was "a friend to strangers." Clunn was a generous-hearted man, and, wishing to give the traveller some encouragement, employed him to make a quantity of brass buttons. Such work was out of the usual line of business of Fitch; but he undertook it, and, although under many disadvantages for want of proper tools, he had the job completed in a short time. He did other work, and now essayed to make a set of watchmaking tools. Clunn had an old watch, which he ventured to trust to Fitch, who took it apart and put it together again. This was the first time that the latter had ever touched a watch, although in Timo-

thy Cheany's shop such work had been performed daily. The result gave him confidence, and he added the repairing of watches to the accomplishments which he claimed to possess.

Next door to Clunn lived one James Wilson, who, with few qualifications, was ambitious to have the character of a man who carried on a profitable business. He was a silversmith by trade, and the son of a rich man, who once owned the Amboy ferry. Being an only child, young Wilson had been too much indulged. He was at the proper age apprenticed to a silversmith at New York, to whom a large fee was given for his instruction. Wilson's board was paid by his father's estate; and, being a gentleman apprentice, the young man only worked when he chose, and his master paid little attention to him. He was now in Trenton, a silversmith in name, possessing a fine set of tools, but having only a small degree of practical skill. Clunn prevailed upon Wilson to engage Fitch, and the latter being very ingenious and observant, soon managed to pick up the trade. Wilson was deficient in the steady qualities which his journeyman possessed, and being addicted to dissipation, soon fell into trouble. The business was light, and with great economy Fitch restricted his expenses to three pence a day, which was within his income, and he subsisted mostly upon fruit. Business became so dull that he determined to travel in search of customers. With eight or ten shillings in his pocket, and with clothing much the worse for wear, he set out on the 4th of September, 1769, as an itinerant pedlar. His stock in trade was fifty or sixty pair of brass sleeve-buttons, and with that small store he went into

the townships of Springfield and Mansfield, Burlington County, hoping to eke out the profits of his adventure by cleaning clocks for the farmers, and without having any settled design of returning to Trenton. His success was gratifying. He sold all his buttons for 10*d* per pair, and cleaned twelve clocks while upon his circuit. After a tour of two weeks he returned to Trenton, and determined to try another trip as soon as he could prepare for it. He bought an old brass kettle and worked it up into sleeve-buttons, with a supply of which he went some days afterward into Monmouth, where he did nearly as well as upon his first journey. He now hired a room of William Smith at Trenton, and went into the manufacture of brass and silver buttons, and in two weeks was off again to the Raritan, where he succeeded admirably. Meanwhile, Wilson had got into difficulties with one Daniel Pegg of Amwell, who had given him a watch to repair which was never returned. Wilson was arrested, and by way of compromise it was agreed that he should hire his tools to Fitch at a small rate, to be paid to Pegg, until the claim was satisfied. Other creditors were importunate, and in a short time afterward Fitch was induced to purchase the tools for £40, of which sum he paid £30 in cash. He then congratulated himself that he had the finest set of tools in America. He was destitute of money to carry on trade, but went on in a small way, gradually increasing his stock and acquiring credit. He was soon enabled to borrow on occasion, and, being very particular in his payments, was enabled to command the confidence of those capitalists to be found in all communities, who are always

willing to lend money at round rates of interest. He employed Wilson as a journeyman, and afterwards others, and became a famous silversmith, having a greater run of business than any silversmith in Philadelphia, as his journeymen told him. He still continued his trips with his buttons throughout the surrounding country, often carrying a budget worth £200. By these means he waxed rich, and when the Revolutionary war broke out he estimated himself to be worth £800.

As the political disputes between the Colonies and Great Britain arose into importance, Fitch became a strong partisan upon the American side. At an early stage of the contest, he petitioned for the command of a company in the Jersey line, and was assured of obtaining a commission. The members of the Convention of the Province, when the raising of troops was first proposed, were of opinion that every soldier should be compelled to furnish himself with arms, ammunition, and clothing—a plan which would have been grievously burdensome upon the privates, most of whom were poor men. As they were not on an equality in point of means, it was obvious that there would have been such hardship by enforcing the order that the condition of the troops would have been demoralized at the beginning, and their effectual force would have been greatly weakened by the discontents which would have arisen, as well by the want of uniformity in equipment consequent upon diversity in pecuniary ability. Fitch was one of those who protested against the enforcement of that resolution, and the opposition evoked against it was successful in causing a reconsideration

and recision of the regulation. When the first company was raised at Trenton, John Fitch was chosen 1st lieutenant, and Wm. Tucker 2d lieutenant. The latter was an old resident, whilst his superior officer was but a stranger. Lieut. Fitch was of opinion that his comrade ought to have the principal position, and he made a proposition that they should change places. This arrangement was agreeable to Lieut. Tucker and the company, and accordingly Lieut. Fitch was commissioned as *second* lieutenant.

Hardly had this arrangement been made before the Committee of Safety of the Province of New Jersey solicited Lieut. Fitch to undertake the duties of gunsmith for them; and in order to encourage artificers necessary for the efficiency of the troops, they passed a resolution that the gunsmiths should not be liable to be called upon to do military duty. Although this regulation exonerated Lieut. Fitch from service, he did not desire to avail himself of it, but attended company trainings as usual. He had begun the business of armorer according to the request of the Committee of Safety, and had several workmen employed. In the summer of 1776, a large number of the militia were ordered to go to Amboy, and Fitch was called upon for arms to fit them out. Not having sufficient, he went through the townships and obtained all the arms that were to be had with the consent of the owners. In this business he became involved in a dispute about a gun with Alexander Chambers, who had been Barrack-master of the King's barracks, and was then a commissary to furnish the provincial troops. The quarrel was further embittered by a demand made on Chambers by Fitch

for blankets for the use of some poor soldiers, and which articles were, by the interposition of superior authority, obtained from the unwilling commissary. The result of these difficulties was, that from a friend Chambers became a bitter enemy of Fitch, and subsequently exerted his whole influence against him wherever it was possible to do so. At this time Lieut. Fitch took the temporary command of his company, and marched with it to Maidenhead, the place of rendezvous. There a new trouble arose about the rank of the officers. The first lieutenantcy was now vacant, in consequence of the promotion of Lieut. Tucker to a captaincy. Lieut. Fitch was fairly entitled to the position, but enemies attempted to deprive him of it. Under the influence of Alex. Chambers, jr., one John Yard, of the light infantry, was brought forward as the candidate for the first lieutenantcy, to the exclusion of Fitch. There could have been no difficulty as to the right of the latter, who had the post by election originally, and now by seniority. Gen. Dickinson hesitated what to do, and finally, in a seemingly friendly way, advised him to leave the question to the vote of the company. He consented, and was beaten by Yard, who received a majority of two votes. The resentment and mortification of Fitch were very great at this result. He took his gun and knapsack, and marched back to Trenton alone. His presence was very much wanted there, and he was of infinitely more service to the State in the gun-factory than he could have been in the field. Troops were coming in daily from all quarters, and there was plenty of work to do in the repairing and fitting of arms of all kinds. To

keep up with the demand for his labor, Fitch and his workmen were in the shop from early dawn until late night. He worked without intermission, on Sundays as well as week days, which course got him the enmity of the Methodist sect, with which he was then connected, and they expelled him from their society.

In the autumn of the year 1776, three companies were called for, out of the battalion to which he belonged. Col. Smith, the commanding officer, appointed Fitch to the captaincy of the third company. No sooner was this known to Green, Smith, and Chambers, than they set up a candidate for the commission, and endeavored to persuade the colonel to degrade Fitch. The new aspirant thus brought out was one Ralph Jones, a younger officer than Lieut. Fitch. In consequence of this, a dispute arose which occupied two hours, and was only stopped by Col. Smith declaring that he would recall the appointment and defer the nomination to the voice of the officers present. Here again Fitch unwisely submitted, if the power of legal resistance was in him. Ralph Jones was appointed, and Fitch, a second time disgraced and unjustly used, determined to have nothing more to do with the campaign. In due time his commission was vacated, and a new lieutenant elected in his stead. Meanwhile the factory had been carried on with fidelity, and it was continued until the approach of the enemy rendered further labor dangerous. In the latter part of November, 1776, the British were approaching Trenton, occupying successively, as they progressed, the principal points between the Hackensack and the Delaware. On the 8th of December, Washington crossed the Delaware, and took post on the right bank between

Coryell's Ferry and Bristol. At this time all active Whigs evacuated New Jersey. Fitch fled with them, and took refuge with John Mitchell, at the Four Lanes End, in Bucks County, Pennsylvania. Whilst there, his battalion was at Yerley's Ferry. He was uncertain what to do, and was vexed by the conflicting counsels tendered him. At one time he prepared a petition to Gen. Dickinson, that he might be brought to trial by a court-martial, but was persuaded not to present it. At another time he draughted a memorial asking to be reinstated, but withheld it from like influence. Meanwhile his character suffered, and although his services as armorer exonerated him entirely from military duty, some of his enemies did not scruple to call him a deserter. He expected a weary, disagreeable round of disputes if he went to camp, and whilst in a state of irresolution as to his course of action, time went on, and exciting incidents changed the position and the relations of his countrymen who were in arms. Meanwhile, he had obeyed the orders upon the inhabitants of Bucks to muster in the militia, and had been at training in a company commanded by Capt. Hart.

Whilst he remained in Bucks County he devoted himself to study, according to the opportunities which he could obtain, at a time when books were scarce.

Mr. William J. Buck says of him in the "History of Bucks County," Part II. Chapter xxvi., published in 1854-5, in the *Bucks County Intelligencer* :

. . . . During his residence here (Warminster), as I learn from the minutes of the Hatborough Library, he became one of its members in November, 1778, having purchased the share of James Ogleby. It further appears that, at the annual meet-

ing of November 6th, 1779, "The Company taking into consideration the depreciation of the currency, conclude that the fines on delinquent members are too small; they therefore choose Samuel Irwin, Daniel Longstreth, and John Fitch a committee to regulate and fix the fines according to the currency." There is no report from this committee in their records. We next learn that, at a meeting of the directors on the 6th of May, 1780, "John Folwell, making it appear that he had purchased the share of John Fitch, is admitted a member." These records also contain his autograph, which is written in a neat hand. He was a member of the library company about a year and a half. As I had a desire to know what books he had out, on examination, found the following entry:

"John Fitch. 17th of 11mo. Du Pretz His. Lousiana; returned
ye 22nd of 11mo., 1779.
22nd of 11mo. Life of Charles XII. King of
Sweden; returned 4th of 12mo.
4th of 12mo. History of Late War."

By his love of history we see the practical turn of his mind. Soon after, in 1780, he went to Kentucky as a surveyor. . . . His prevailing temperament seems to have been of a melancholy cast; nor need we be surprised at this, for his whole life appears to have been a continual series of misfortunes. . . .

CHAPTER IV.

THE SUTTLE—THE SURVEYOR.

FROM Mitchell's, Fitch removed to Charles Garrison's place, in Warminster township, where he began business in a small way, and prosecuted it until the advance of the British by the head of Elk to Philadelphia and the region above drove him away from what was to become "a bloody ground," lying between the outposts of both armies, and liable to the predatory incursions of each. When he fled from Trenton, he had been successful in bringing away in one small wagon-load some of his tools and most valuable effects. After the battles of Trenton and Princeton, he visited his old home, and found things in a sad condition. Many of his tools had been broken, his household furniture had been destroyed, his chairs had been cut down to stools, and his desk split up for fuel. Reclaiming what he could, he returned to Bucks County, and set up silversmithing in a portion of a wheelwright shop belonging to James Scout, usually called "Cobe (Jacobus) Scout." The approach of the enemy from below rendered it necessary for him to fly once more. He buried his silver and gold by night in a retired and safe situation, as he supposed, upon Garrison's place, and sought the head-quarters of the American army, where he made himself acquainted with the wants of the troops. There was a scarcity of tobacco, and of some kinds of dry goods. He went to Baltimore,

where he purchased enough articles to fill two wagons, which, by slow and toilsome journeys, were driven to the camp at Valley Forge. When he arrived there, he found that large supplies of tobacco had been received, and that which he had brought did not meet with ready sale. He had to keep it on hand a long time, and to manufacture some of it into merchantable shape. He now turned his attention to supplying the suttlers of the army with beer. He engaged all which was prepared at one brewery in Bucks County, and had two wagons and teams in constant communication with the camp. In this adventure he cleared £5 per barrel. Business slackening, he engaged beer at York and Lancaster, and sent one team to Valley Forge each week. Good sales were met with there, and whatever was not disposed of was taken to Trenton, where customers were readily found. On these trips he realized from £50 to £150 Continental currency per week. He put a considerable sum of his earnings into purchases of goods, but kept a large amount of notes on hand, and was distressed at the continual depreciation of the Continental money. It was now, before the camp had quitted Valley Forge, valued at forty dollars of paper money for one in specie, and he had forty thousand dollars of that currency on hand.

When the British evacuated Philadelphia, June 18th, 1778, this trade was broken up, and Fitch turned his attention to his old business. Repairing to Bucks County, he sought his buried treasure on the estate of Chas. Garrison, but to his dismay and grief the precious deposit was missing. He had imprudently buried it at night by the light of a lantern, and his move-

ments had been observed. The treasure had been discovered and dug up. It was some time before any clue to the mystery could be found, but at length it was established that one of Garrison's negroes had possessed himself of the treasure trove. This fellow had been induced to give the whole, or nearly all of the money to a young white man who lived in the neighborhood, and who was of a wealthy and respectable family. Fitch boldly determined to bring him to justice, and he had him arrested.¹ The father of the receiver of the money became his surety, after which the son absconded. Eventually the father settled with Fitch, giving him Continental money at rates more favorable than the current value, although there was considerable loss upon the transaction.

His tools were again put in requisition, and he endeavored to carry on his old brass and silver smith business in Bucks County, where he could live cheaper than in New Jersey. He persevered in this effort for more than a year with but poor success, and what was worse, was compelled to see his wealth depreciate daily, so that his forty thousand dollars, which was worth one thousand dollars specie when the army left Valley Forge, was now of no greater value than one hundred dollars. In this extremity he bethought him what it was best to do, and he concluded that the only way for him to save his money from becoming utterly worthless, was to invest it in land-warrants in Virginia,

¹ In order to procure the warrant, he walked to Spring Mill and back to Warminster, before sunset, forty miles.—1 *Watson's Annals of Philadelphia*, page 586.

and to go out to that unknown region Kentucky, and locate his claims upon the most valuable lands.

In the spring of 1780, he left Bucks County, and repairing to Philadelphia, obtained letters of recommendation from Dr. John Ewing, provost of the University of Pennsylvania, addressed to Dr. James Madison, afterwards Bishop of Virginia, who was at that time President of William and Mary College at Richmond. In that epistle Dr. Ewing declared that John Fitch was a worthy man, and had the proper qualifications to become a deputy-surveyor. Mr. William C. Houston, afterwards a member of Congress, and some others, joined in these encomiums, and their influence was sufficient to procure for Fitch the coveted commission. The journey to Richmond was made upon foot, and it must have been attended with a variety of incidents, but of the particulars we have no record. The country was desolated by war, and wherever our adventurer went there were traces of its influence in wasted fields and dilapidation. From Richmond he travelled, in company with William Tucker, whom he had engaged to assist him in his surveys, westward through what was almost a wilderness, and, after many fatigues, found himself at Wheeling island on the Ohio river, in the spring of the year 1780. Here eleven boats were moored, and they were preparing to descend the stream. A consultation was held among the voyagers as to the best means of securing their mutual safety. The banks of the river were uninhabited, and Indians, whose friendship was not to be depended upon, were supposed to be lying in wait at favorable points, to attack and rob such boats as were not strongly

manned, and able to repel the aggression. Fitch proposed that all the boats should be lashed together, urging as a reason that if they were separate they would become spread out over a considerable distance, and could not give assistance as easily to any one or more which should be selected out by the foe. This proposition led to considerable debate. The Rev. Mr. Barned, a Baptist clergyman, coincided in this opinion, and advocated it strongly. But contrary resolutions prevailed. Foremost among the opponents was one Tombleston, who owned two boats which seemed to be well manned, who was selfish enough to suppose that their speed would be sufficient to enable them to escape, even if his companions should suffer. Finally, it was decided not to adopt Fitch's plan, and the proposer was even accused of cowardice because he had ventured to suggest it. These taunts did not deter him from what he thought was proper, and although he was but a passenger on the boat in which he was to descend the river, he directed Tucker to cut a number of grape vines and bring them on board. This excited the displeasure of one Stone, who directed that they should be thrown overboard; but Fitch represented that they would be useful in fastening the boat to some object on shore at places where they desired to stop, and they were reluctantly permitted to remain.

It was a bright morning when the voyagers left Wheeling, and the sun shone serenely upon the thick vegetation on the banks of the river, which were gay with the garniture of spring. They floated along amid scenes of wild beauty, drinking delight from the ever

varying natural panorama which opened upon them at each bend of the river, revealing to the eye the majestic terraces of hills which stretched away on either side into the blue distance. It was not long before the little fleet became scattered along the stream, extending over two miles. About eleven o'clock, the boat on which was the Rev. Mr. Barned came near that in which Fitch was, and the latter invited his friend to come on board, and "get a drink of grog." The proposal was accepted, and as the craft drew near they were lashed together, and the crews of both participated in "drinks all around." The connection was found to be no detriment to their speed, and they did not sever it. Shortly afterward two other boats were thus united, and after that two more, and finally both of those couples were fastened together. Towards evening the boats of Fitch and Barned joined them, and the six, now having a common interest, prepared for the night. There were eighteen men in them, and they divided themselves into six classes of three each. Two persons pulled the bow-oars, and one steered all the boats. The watches were strictly kept and relieved, and in the morning all congratulated themselves on a plan which permitted so much rest. If each boat had floated along singly, the services of three men would have been required in each, and the crew would have been much more fatigued.

When daylight enlivened the scene, the boats of Tombleston were discovered ahead, and as that individual acted in perfect independence of his companions, he stopped at the mouth of the Big Sandy River, and his party went on shore. The others were under no

obligation to wait upon the movements of Tombleston, and they proceeded onward, and nothing more was seen of him during that day. After they left him, a fine canoe was discovered tied to a sapling growing upon the bank. The sight of this prize incited some of the persons in the boats to go to the shore and secure it. This was done safely, although the act was very imprudent, as there could be but little doubt that Indians were in the immediate vicinity.

The next morning, when the sun was about an hour high, smoke was discovered ascending from the banks of the river several miles ahead of them. This circumstance ought to have warned them of the necessity of using great circumspection, but it did not. When they got near the place from which the smoke had ascended, four fine canoes were seen moored near the shore. The avarice of some of the boatmen was aroused at the sight, and they made preparations to seize the booty in the same manner as on the previous day. Fitch, who was in the cabin, came out upon deck, and remonstrated against this rashness. Tucker was in one of the canoes, and he commanded him to come out. Scarcely had this order been reluctantly complied with when a party of Indians were discovered running down the bank. On perceiving this, Fitch went below, brought up a supply of cartridges and a loaded gun, and laid it down on the deck along-side of him. He then seized the steering-oar, and not only endeavored to get the boats away from the bank, but to protect them from the guns of the Indians. The sides of the boat nearest the shore were low, and the men in it were very much exposed. In order to shield these

people, endeavor was made to turn all the boats round, and set the bows up the stream. In executing this movement their sterns were brought fair in toward the Indians, two of whom fired at Fitch, whose life was preserved by a cask of flaxseed in which the balls lodged. This danger brought him down on his knees, and not being able in that position to manage the oar, he called for help. With some difficulty, Stone was induced to assist. Their bodies were protected, but their hands were exposed, and the Indians fired at them. Stone was wounded in the wrist, and it was with much difficulty that he could be persuaded to continue his help; but finally the low-sided boat was got out of the range of the fire-arms of the Indians, so that the crew could bestir themselves. The places where the bow-oars were fixed were barricaded with bedding, and the oars being double manned, the boats were soon got out into the middle of the stream, and toward the other bank. Upon perceiving this, about thirty Indians crowded into the canoes, and crossing the river behind the voyagers, began to annoy them from the shore then nearest them. To defeat this manoeuvre, the bows of the boats were now steered down the stream, towards the bank from which the danger first arose. Upon perceiving the movement, the Indians divided their forces. Two canoes loaded with warriors were paddled across the river again, and the voyagers were subjected to shots from both shores. The battle was now spirited. The Indians had the advantage of the cover afforded by trees and bushes, and the people in the boats had to lie close, and fire at the enemy with great caution, so as not to expose themselves too much.

For two hours this contest continued, when Fitch and his companions were relieved from the annoyance by the intervention of a new object of prey for the attention of the red men. This was caused by the appearance of Tombleston and his boats. He had followed after the others, and there was now an opportunity for him to understand how foolish he had been in his own conceit, and how he suffered by rejecting prudent counsel. A small party of the foe held Fitch and his companions in check, whilst the main body of the savages made a descent upon the self-reliant braggart. One of his boats, which was loaded with lumber and valuable property, was captured. Three of his crew were wounded, but escaped in the second boat, which by strenuous rowing, and amid much peril, was brought up to the others about dusk. Tombleston was now perfectly willing to fasten his craft to them, and they parted no more during the voyage. With the going down of the sun this fight ended. None of the crews were killed. Stone, the three men of Tombleston, and a negro, were wounded. One cow was shot dead, two or three were wounded, and fourteen horses were injured in various ways. Whether the Indians suffered any is not known; but it may be doubted whether they sustained any serious loss.

In due time the adventurer arrived in Kentucky, where he proceeded to make surveys, and to locate his land-warrants. In this business the Rev. Mr. Barned assisted. He was a good woodsman, and an intelligent man. He was very poor, and Fitch made a proposition of partnership to him. In addition to his own land-warrants, he had brought with him from Virginia

some which belonged to other persons, upon agreement that for his trouble and skill in locating them upon good tracts, he was to have one-half of the ground. He now proposed that Barned should explore the country and note the best locations, whilst he would survey the tracts which were chosen. The gratitude of Mr. Barned at this offer was very great, and he embraced it with alacrity, being promised an equal share in the profit of the undertaking. The two accordingly set about the employment—Barned explored and Fitch surveyed. They were engaged in this task during the whole of 1780. In the spring of 1781, Fitch returned to Virginia, where he had his surveys recorded, leaving Barned in Kentucky, whom he expected to meet again in the ensuing spring. Fitch never saw him again, but in 1790 he heard that he had done exceedingly well, and was worth fifty thousand pounds. The lands thus acquired by John Fitch amounted to sixteen hundred acres. Owing doubtless to the number of such claims, the warrants and returns of survey were filed, but patents were not prepared for many months afterward, by the officers at Richmond. They bear the following dates:—For three hundred acres in Jefferson County, on Cox's creek, June 1, 1782; for three hundred acres on the south-west branch of Simpson's creek, Sept. 1, 1782; for one thousand acres on Cox's creek, Sept. 1, 1782. In a power of attorney to Jonathan Longstreth, given in 1788, Fitch describes these lands as located in Jefferson, Nelson, Lincoln, and Fayette Counties.

CHAPTER V.

THE INDIAN'S CAPTIVE.

IN the summer of 1781, Fitch returned to Bucks County, where he applied himself to settling up his business and collecting all the money he could, as he believed that by proper purchases of land in Kentucky it was possible for him to lay the foundation of an immense fortune. He was not as successful as he desired to be, but he obtained about £150 specie, having still some interests which would require his return.¹ In thinking over what would be the best method of investment, he determined to go to Fort Pitt, buy flour, and go down the Ohio and Mississippi to New Orleans, intending to return thence to Philadelphia. He expected to be able to finish the trip before the end of the surveying season. Meanwhile Barned was engaged

¹ Whilst here, his heart seems to have yearned towards his family, and he addressed a letter to his son, who was then thirteen years old, of which the following is an extract :

“WARMINSTER, BUCKS Co., June 16, 1781.

“MY DARLING BOY. — Believe me, when I took you, in my arms and kissed you for the last time, and took my last farewell, you may be assured that I felt every emotion that it is possible for a tender father to feel. How my heart dissolved into tears, and how my sinews wanted strength, I can better feel than express. Be assured, your father loves you, and that there is nothing would make him more happy than to take you under his parental care.”—*Whittlesey's Life of Fitch*. *Sparks' American Biography*, second series, Vol. VI., page 98.

in examining lands and exploring in Kentucky for their joint benefit.

The scheme was accordingly resolved upon. He reached Fort Pitt early in March, 1782, where he laid out his money as intended. The boat was a large one, and was chartered by four adventurers, but Fitch had the greatest portion of the cargo. The captain was Joseph Parkerson, a person unfitted for the station, as subsequent events clearly established. There were nine others on board, viz., John Fitch, Capt. Magee, Thomas Bradley, — Houston, — Williams, — Ealey, — Sigwalt, Wm. Jarrad, and one whose name has not been recorded.

On the 18th of March, 1782, they departed from Pittsburg. Stopping at Wheeling island for a short time, they left that place in company with three other boats. On the morning of the 21st, they were opposite the mouth of the Muskingum. Parkerson, by mismanagement, contrived to set the boat so hard upon the point of an island below that river (having extra oars full-manned at the time), that it was impossible to get it off. Capt. Hopkins and two men who were in a smaller boat near to them, came to their assistance, but all effort was unavailing. After wasting much time in an endeavor to push off, it was agreed that no other plan could be successful than the removal of a considerable portion of the cargo. All hands were consequently put to the labor of taking out the flour. They piled it upon the shore, and about sunset the boat floated. It was taken down the river about forty pole and tied to a sapling. The crew were very much fatigued, and they determined they would re-load the

boat with the flour the next morning. Yielding to the entreaty of Fitch, who was thought over-timid, they kept a watch that night. When it was his turn to keep guard, he procured an axe and laid it near the bow-fastening, so that it might be used in case of necessity. The others slept soundly. Nothing was observed to mark the presence of any danger.

At daylight a man was sent out to scout the island, and with particular caution not to fire his gun at any game, but only as an alarm. Meanwhile, the rest of the crew gathered round the caboose, and indulged themselves with "a hot buttered dram." The axe which had been placed in the bow the night previous, was now sought for by Fitch, but it could not be found. He looked for it all over the boat, but could not discover it. He did not ask about it for fear of being laughed at for his cowardice, a timidity which he had afterwards much cause to regret. The scout was absent a longer time than was expected, and whilst he was away, a man was sent out of Hopkins' boat which was moored near the place where the flour was piled. No sooner had he gone behind the barrels than he was secured by some Indians who were lurking there, and he was taken before he could give the slightest alarm. The first scout had been captured in the same way. About sixty feet from the boat was a large pile of drift-wood. Upon the top of this the Indians managed to crawl unperceived, and the first intimation which the crew had of the danger, was by a volley from their rifles, by which discharge Capt. Magee was instantly killed. Directly afterwards, Thos. Bradley, with more courage than prudence, went on deck to cut the fasten-

ing of the boat, and was shot dead. The others now retreated below, where Fitch and Houston stationed themselves at port-holes, and with guns ready cocked watched for the enemy. The others yielded themselves up to fear, and laid down close in the bottom of the boat. After waiting half an hour without perceiving the foe, who laid quiet behind the bank, Fitch took up a tomahawk and began to cut a hole through the bow of the boat near the deck. His design was to make an aperture large enough to allow the passage of a knife fastened to a stick, with which the fastening might be cut. He succeeded in making an opening about three inches square, when a ball from a gun fired upon shore passed through the plank about two inches from his face. He was cut slightly by the splinters. Finding this work rather dangerous, he got two boards and set them on each side of the hole. He was cutting down another, which was too long, when one of the prisoners was sent on the bank to demand their surrender. Fitch entreated Parkerson not to listen to him, nor to think of yielding. He assured him that he would have the boat loose in less than half an hour. He told him that there was nothing to fear, as the number of Indians could not be more than six, judging from the reports of the guns which were fired. He even said, that if all on board would rush out, they could drive the Indians off. But Parkerson was constitutionally timid, and while Fitch continued cutting the plank, the Captain told the prisoner on shore that he would surrender. Being nearest the bow, he marched out, followed by five others. Fitch and Houston remained, but, finding their companions had yielded,

the former said to the latter, "If it must be so, I suppose we had better march out too." Hopkins and another, who were in the other boat, also yielded. "Thus," said Fitch to Mr. Irwin, "we ran aground for want of judgment, and gave ourselves up prisoners to the savages for want of courage, as nine stout healthy men of us, all well armed, marched out to eight Indians, which was more than I expected there was, as I imagined they all fired at the first shot."

He blamed himself that he did not ask in the morning for the axe for fear of being laughed at as a coward. If he had found it, he might have cut the boat loose at the first fire, and not been made a prisoner. He also regretted that he did not request Houston to stand by him when the others left the boat, as all their loaded guns remained; "but," he said, "I had not that presence of mind, and so I became a captive on the 22d of March, 1782."

It was somewhere near the site of the present town of Marietta, in Ohio, where this disaster occurred, and the eleven unlucky adventurers had to prepare for a march through a wilderness which is now included in the finest portion of Ohio and Michigan, until they reached Detroit. The Indians were not harsh towards them after they submitted. The party was commanded by three principal braves, who were named Capt. Buffaloe, Capt. Crow, and Capt. Washington. They remained on shore for half an hour before they went upon the boats. Their first care was to scalp Magee and Bradley, after which their bodies were thrown overboard. They then went below and brought out the goods, which were taken on shore; they carried

off, also, all the blankets, guns, and ammunition. After this, Capt. Crow tied a war-club to the steering-oar, and set the boat adrift. Flour, which was on board of Hopkins' boat, was also taken and concealed upon the bank. The savages then held a consultation as to what they should do. The majority of the prisoners must have been in an awful state of suspense; but Fitch, who was very drowsy in consequence of having been on the watch during the previous night, asked permission of Capt. Crow to lie down and sleep. This request was granted, and wrapping an old camlet cloak about him, he consigned himself to slumber. In the meanwhile, Capt. Buffaloe having helped himself freely to liquor, which was among the stores, became drunk. In that condition he was not very amiable in his temper. Perceiving the prostrate prisoner, he rushed toward him, exclaiming in a language not understood, "Zeak! Zeak!" Fitch opened his eyes, sat up and said "no," when Buffaloe, again saying "Zeak," drew a tomahawk and aimed a fair blow directly at the forehead of the captive. Crow was by, and rushing forward he seized the arm of Buffaloe in time to prevent the fatal consequence. After this incident, there was little desire to attempt to sleep again, and the prisoner went and sat down with his fellows. The Indians now began to make up the goods in bundles, graduating the weight according to the apparent strength of those who were to carry them. Some of the prisoners were loaded with thirty pounds, but Fitch, who was not robust, was only burthened with a pack weighing seven or eight pounds. The Indians themselves took much heavier bundles, some of which weighed as much as sixty

pounds. Their superfluous clothing was then taken from the captives. Fitch lost his camlet cloak, and what was worse, his cap and night-cap were seized, and without any covering for his head, he commenced the tedious journey. They were also bound, but very slightly, and more as a sign of captivity than of service. Some were tied with rope-yarns. Fitch was secured with a bark string, not thicker than a goose-quill, which he could have snapped with one finger. A division was also made of the prisoners among the captors. Fitch and six others were assigned to Capt. Buffalo. Capt. Crow had two, and Capt. Washington two. They then took up their toilsome march towards the north-west. Strict precautions were used throughout this journey. Scouts were sent out in front, and two Indians remained behind the party all day, and never came up until after dark, and when they were prepared to encamp for the night.

About an hour before sundown they came to a camp where they had their suppers. All ate heartily, and sat about the ground until it was time to sleep. The prisoners were now pinioned with stout cords, and then a rope was run from one to the other, until all were fastened together. They were commanded to lie down on their backs, and their feet were secured in the same way. They were unused to such confinement, and the ligatures being very tight some of them suffered excruciating pain.

In the morning they started early, and marched all day without any special incident. At night, Captain Crow took the scalps of Magee and Bradley, cut them in a circular form and stretched them upon little hoops

about three inches in diameter, which were painted red. The prisoners were again secured, and slept as they had done on the previous night. The only dependence they had for provisions was upon the game which they might be able to shoot. As they advanced further upon the road, and came near the Indian towns, these supplies became stinted. A buck was shot on the fifth day, which was the last supply of importance which they received. Food became scarce, the party being nineteen in number, and the prisoners suffered severely. The captors dealt fairly by them, and there was an equal division of what there was to eat among all alike. Fitch, who seems to have had a good appetite on all occasions, felt these privations acutely, and lost his strength. Deprived of a covering for his head, he caught a severe cold, and his eyes became so sore that he could scarcely see. During the latter part of the march the weather was wet and drizzling, and the prisoners laid down at night in water an inch deep, and were compelled to bear the pelting of snow, mixed with rain, to their grievous discomfort. The Indians, who had treated them with considerable kindness, now became more strict and severe, and in addition to being pinioned and hopped at night, cords were tied round their necks. Before they reached the first Indian town, Captain Buffaloe came to Fitch, who was dressed in a striped linsey-woolsey coatee and jacket, with home-made silver buttons. He cut off all the buttons on this coat. Giving the prisoner the knife, he motioned him to cut off those upon his jacket, and by signs directed him to put them in his pocket. The intention of this was to prevent his being stripped of

his clothing by other Indians, in whose eyes the buttons would have been sufficiently dazzling to incite them to deprive the poor captive of all his garments. Fitch appreciated the kind motive of this act, and was duly grateful.

On the twelfth day of their march, they reached the first town of the Delawares. Before approaching it Captain Crow had cut a straight stick, about twelve feet long. To this he attached the prepared scalps of Magee and Bradley, which were tied to strings, and fastened to the pole six or eight inches apart. When the party approached the first town, they were halted three or four poles from it, and thirteen hallooes were given by the captors, which signified the number of prisoners and scalps.

A boy of ten or twelve years of age came out, and seizing the scalp-pole ran with it into the principal house. There were no Indians in it, there being a grand council of the nation at another town, to which the chief warriors had gone. A large number of Indians flocked around them, however, and stripped them of a good part of their clothing, but no further harm was done them. At this town they heard, for the second time, of the massacre of the Moravian Indians on the Muskingum, at which the Delawares seemed to be very much enraged.¹ That night they were more severely

¹ The particulars of this atrocious barbarity are thus related in Howe's Historical Collections of Ohio, page 784:—

“Several depredations had been committed by hostile Indians about this time [1782] on the frontier inhabitants of western Pennsylvania and Virginia, who determined to retaliate. A company of one hundred men was raised and placed under the

treated than usual, and they drew from the seeming temper of the Indians, very sorrowful forebodings of the nature of the usage which they were about to receive. The next day they were marched toward the

command of Colonel Williamson, as a corps of volunteer militia. They set out for the Moravian country on the Tuscarora [Olna], and arrived within a mile of Gnadenhutten on the night of the 5th of March. On the morning of the 6th, finding the Indians were employed in their cornfield on the west side of the river, sixteen of Williamson's men crossed, two at a time, over in a large sap trough or vessel used for retaining sugar-water, taking their rifles with them. The remainder went into the village, where they found a man and a woman, both of whom they killed. The sixteen on the west side, on approaching the Indians, found them more numerous than they expected. They had their arms with them both for purposes of protection and for killing game. The whites accosted them kindly, told them they had come to take them to a place where they would be in future protected, and advised them to quit work and return with them to the neighborhood of Fort Pitt. Some of the Indians had been taken to that place in the preceding year, had been well treated by the American governor of the fort, and had been dismissed with tokens of warm friendship. Under these circumstances, it is not surprising that the unsuspecting Moravian Indians readily surrendered their arms, and at once consented to be controlled by the advice of Colonel Williamson and his men. An Indian messenger was despatched to Salem, to apprise the brethren there of the new arrangement, and both companies then returned to Gnadenhutten. On reaching the village, a number of mounted militia started for the Salem settlement, but ere they reached it, found that the Moravian Indians at that place had already left their cornfields, by the advice of the messenger, and were on the road to join their brethren at Gnadenhutten. Measures had been adopted by the militia to secure the Indians whom they had first decoyed into their power. They were bound, confined in two houses, and well guarded. On the arrival of the Indians
1 (their arms having been previously secured without

principal town of the Delawares, where there was a large council of the several nations. Their masters, knowing what was intended for them, halted them, before they reached it and took their bundles from

suspicion of any hostile intention), they were also tethered and divided between the two prison-houses — the males in one and the females in the other. The number thus confined in both, including men, women, and children, has been estimated at from ninety to ninety-six.

“A council was then held to determine how the Moravian Indians should be disposed of. This self-constituted military court embraced both officers and privates. The late Dr. Doddridge, in his published notes on Indian wars, says: ‘Colonel Williamson put the question, Whether the Moravian Indians should be taken prisoners to Fort Pitt, or *put to death*?’ requesting those who were in favor of saving their lives, to step out and form a second rank. Only eighteen out of the whole number stepped forth as advocates of Mercy. In these the feelings of humanity were not extinct. In the majority, which was large, no sympathy was manifested. These resolved to *murder* (for no other word can express the act) the whole of the Christian Indians in their custody. Among these were several who had contributed to aid the missionaries in the work of conversion and civilization, two of whom emigrated from New Jersey, after the death of their spiritual pastor, the Rev. David Brainard. One woman, who could speak good English, knelt before the commander and begged his protection. Her supplication was unavailing. They were ordered to prepare for death. But the warning had been anticipated. Their firm belief in their new creed was shown forth in the sad hour of their tribulation, by religious exercises of preparation. The orisons of these devoted people were already ascending to the throne of the Most High—the sound of the Christian’s hymn, and the Christian’s prayer, found an echo in the surrounding woods, but no responsive feeling in the bosoms of their executioners. With gun, and spear, and tomahawk, and scalping-knife, the work of death progressed in these slaughter-houses, till not a sigh or moan was heard to

them. The shoes were taken from Fitch and a pair of moccasins given him, he did not know exactly why, but soon was better instructed. Captain Crow was a Delaware Indian, born in New Jersey, who had come westward to the chief settlements of his people. He could speak English very well, and before they reached the great town he told the prisoners that if any Indians came out to abuse them, they must run to the long house at the end of the village, and after they got in it nobody would hurt them. They marched on coolly until they were within sight of the town, and about a quarter of a mile from it, when their captors gave the scalp halloo, a practice in which they often indulged, and which, therefore, attracted but little attention from the prisoners. Passing on a little further, they saw the Council House with crowds of savages around it, and distant from them about fifty pole. The halloo was repeated thirteen times, and when the last one was given all the Indians joined in a loud shout. A stout savage, painted black, and entirely naked, except a

proclaim the existence of human life within—all, save two. Two Indian boys, escaped, as if by a miracle, to be witnesses in after times of the savage cruelty of the white man toward their unfortunate race.

“Thus were upwards of ninety human beings hurried to an untimely grave by those who should have been their legitimate protectors. After committing the barbarous act, Williamson and his men set fire to the houses containing the dead, and then marched off for Shoenbrun, the upper Indian town. But here the news of their atrocious deeds had preceded them. The inhabitants had all fled, and with them fled for a time the hopes of the missionaries to establish a settlement of Christian Indians on the Tuscarawas. The fruit of ten years’ labor in the cause of civilization was apparently lost.”

breech-cloth, now ran like a deer towards Captain Crow, and seizing the pole with the scalps, sped swiftly with it towards the Council House. When the captives reached the top of a hill, they saw that he was near the building, and, to their great dismay, they saw a large body of Indians rushing towards them with terrible shouts. The prisoners had been marching in single file until this time, but when the first one of them was reached by the Indians, and was struck by the foremost, the party took to their heels and scoured across the plain towards the haven of safety. They were not severely used—Fitch was slapped by several with open hands on the sides, face and back. One brave caught him by the hair, pulled him to the ground, and then abandoned him. He scampered on as fast as he could, but near the house was doomed to receive the severer punishment of the “gentler sex.” These specimens of womanhood were armed with thick sticks about the stoutness of walking-canes. With these cudgels they struck the fugitive as he passed, with their hardest blows. About twenty feet from the door he stumbled and fell over a log; he did not get up, but scrambled in upon his hands and feet, and, having got his head and a part of his body in the doorway, supposed he was safe. But, like the ostrich under a similar miscalculation, he was soon satisfied of his mistake by some very sturdy thwacks.

CHAPTER VI.

ADVENTURES AMONG THE SAVAGES.

THE Council House was about sixty feet long, and twenty broad, having large doors at each end. When the prisoners entered they found it very much crowded with chiefs and warriors. The first ceremony observed was the bringing of a number of kettles containing cooked hominy, of which the chiefs partook, and of which the prisoners were invited to participate. After a long silence, the Indians began to speak to each other in a solemn manner. The captives were unable to understand their remarks, but the gestures used caused them considerable alarm. The massacre by Williamson was a matter which, it was guessed, occupied the greater part of their deliberations, and it was feared that a bloody revenge would be wreaked upon those who had fallen into the hands of the aggrieved. The debates continued without intermission all the afternoon, but were broken off at sunset. The prisoners were ignorant of the resolution which the Indians had taken, and they were depressed in spirit. The Council House was now prepared for a grand dance. Six small fires were built upon the earthen floor at equal distances from each other. Three or four women commenced the movement to the rude music produced by rattling a calabash filled with beans or pebbles, and the sound of a drum made by drawing a skin over a tub. The step was regular, the dancers lifting their feet as if

marching, but only advancing some three or four inches by a graceful spring, which brought both feet together. As they became warmer they threw off their blankets, dexterously twining them around their waists and securing them there. Those who commenced, danced around one fire, and their number was increased by young girls who had scarcely seen thirteen years, and women of all ages up to seventy. When those who were round one fire increased to twenty, they separated and danced in half circles round two fires. The men had looked upon this preparatory ceremony with apparent unconcern; but now, they themselves undertook the task. Each warrior sang his own song, and his highest ambition was to exceed his companions in the grotesqueness and variety of his capers. In these exhibitions they were exceedingly extravagant. Some of them would stoop and put their heads into the fire, and jump up with prodigious leaps, yelling with wild fury at the top of their voices. The scene was strange and impressive. The ear was deafened with the sound of rattling calabashes and beating drums, mingled with barbarous songs and outlandish shouts. The eye was fatigued with a variety of motion, in which stalwart forms in picturesque and active exercise were for a moment lighted up with the glare of the flames, and then hidden from the sight amid the throng. The scene made a very deep impression upon the memory of the captives, which was more vivid because they supposed it was a prelude to tortures to which they feared that they would be subjected. They were invited to participate, and all thought it prudent to do so, except Fitch, who was sulky and stubborn, and who

brooded angrily over the situation in which they were placed by the barbarity and inhumanity of Colonel Williamson. He expected that he would be put to death, and he cared not how soon, and was unwilling to do anything which might cause the savages to look favorably upon his condition. Whilst he was thus moodily engaged in thought, a portion of his apparel awakened the avarice of one of the Indians. The coveted article was no less a garment than his breeches, of linsey-woolsey, which, although threadbare and broken at the knees, was desired by one of the chiefs. He sent an Indian to Fitch, with a valuable breech-cloth richly decorated with wampum, and proposed an exchange. This request was unceremoniously refused by the captive, and he determined that he would sooner die than do the least thing to please those whose power over him was absolute. What the result would have been cannot be told, but the chief, more reasonable than was expected, again sent his agent to another prisoner with a like demand, but did not offer the breech-cloth in barter. The latter complied at once, and slipping off the envied treasure, it was borne away in triumph by the new owner.

After the dance was concluded the Indians withdrew, and the prisoners remained in the Council House all night. The next morning, when the chiefs assembled, persons were brought there who could read English, and the writings and papers found on Fitch and his companions were read. It seemed that they were suspected to have belonged to Williamson's party, but it was discovered by the nature of the papers they bore that they "were no warriors," "although," remarked

Fitch, "they might have known that before." Another debate an hour long ensued, after which the captives were taken out of the Council House.¹ Captain Crow gave up his two captives to one of the chiefs, and Captain Buffaloe parted with two which belonged to him. The two which were assigned to Captain Washington, and the five which remained to Captain Buffaloe, were now marched to the town in which the latter resided. On the way, Crow told them that they had been in great danger of death, and it was their belief, from what he said, that the four prisoners who were left behind were relinquished in order to save the lives of all of them, as captives then brought a good price at Detroit. At Buffaloe's town they halted; Captain Washington went on with his two prisoners, but those who remained were put to work in building a house for the old chief. Fitch refused to labor on account of the weak and miserable condition in which he was; not only on account of his sore eyes, but from bodily suffering. Parkerson and Hopkins quarrelled with him, during the course of which controversy reference was made by Fitch to their cowardice at the time of capture, which incensed them very much. Buffaloe had but a scanty stock of provisions for the sustenance of so many persons, and their usual rations were a half-pint of dried corn a day, pounded into hominy and boiled. They suffered very much for want of salt, to which they had been accustomed, and when the Indians

¹ The Delaware towns were mostly situated within the boundaries of the present county of Delaware, Ohio. The present town of Delaware occupies a portion of the site of an Indian village.

occasionally killed cranes or turkeys, and brought them to be cooked, they were boiled in fresh water, which made them tasteless and somewhat unpalatable, but, nevertheless, welcomed by hunger. Being just able to walk about, Fitch gathered wild onions and artichokes for his companions, and one day he caught five or six fish with a pin hook. Buffaloe used no severity towards him, but got some calamus-root which he made him take as a tonic and strengthener. They remained at this town some ten or twelve days. While there, Buffaloe was attended by a likely young squaw. His wife was in another town about five or six miles off, but her husband did not visit her during the whole time, nor did the wife intrude herself upon him. When they left Buffaloe's town, they marched within half a mile of the village in which the wife was living. About four o'clock in the afternoon they came to a camp where they stopped. After they had been there some time, the wife came up, carrying a fine child about eight months old. She approached the chief in silence, and sat down. No word passed between them for about a quarter of an hour, when they began to converse in a low musical tone—such being the Indian mode of meeting among the best friends. The young squaw now withdrew to a distance, and that night slept about ten feet from the chief. In the morning Buffaloe killed a deer. He gave his wife one half of it; she withdrew well pleased, and returned to the village leaving the young squaw with her husband, who accompanied him the rest of the journey. There seemed to be no ill feeling between these women, and the wife was thereby relieved of drudgery which she would have been com-

pelled to undergo if she had gone along. Beside the young woman, Buffaloe was attended by two nephews, nine and eleven years old, and the five prisoners trudged on submissive to this escort of one old Indian, a woman, and two boys.

Their route lay for several days through wide prairies, the only objects upon which to attract the sight were "islands," covered with hazel bushes and trees. The weather was wet, and the rain was constant. They marched in water, generally ankle-deep, sometimes as high as their knees, and even up to their waistbands. Provisions became very scarce toward the latter part of their journey, Buffaloe not being able to leave the prisoners and kill game for fear that they might escape. Parkerson and Hopkins proposed that they should rise upon them, but it was sagaciously opposed by Fitch, who thought that, if at liberty, they would only die of starvation. On the seventh day they came to the Maumee river, about eighteen miles from Lake Erie. A trading post was here established, and kept by Saunders and Cochran, at an Ottaway town. The prisoners were ferried across in a bark canoe. Here was obtained a reasonable allowance of provisions. They remained at the store and lodged there for three days. Buffaloe encamped upon a hill, about forty pole from the house. While he was there, a number of Delawares returned from Detroit, and pitched their tents near Buffaloe. This party amused themselves by getting drunk, and they made a great noise. A servant of Saunders was so imprudent as to go among them, and one of the Indians supposing him to belong to the prisoners, struck him with his tomahawk, from the effects of which he

died the next day. He managed to get down to the house after he was wounded, and Saunders and Cochran, taking their tomahawks, went among the Delawares. They found the temper of the Indians to be very dangerous, and they soon returned with marks of fear upon their countenances. Scarcely had they got in the house, before the Indians upon the hill gave the scalp halloo, repeating it five times according to the number of prisoners. Fitch knew that some serious difficulty might be expected, and, seizing an axe, he slipped through the window of the kitchen into the garden, where he had seen some bean-poles, and cutting them into clubs he took them into the house to his companions. He told the latter what he feared, but they only laughed at his frenzy. He had not returned more than a quarter of an hour, when he again heard the scalp halloo and war-whoop, and going into the next room he got through a window into the yard, taking the axe with him. He went to the stable, where he fastened himself in, and put affairs in as good a posture of defence as possible. These hurried preparations were not made before the whole body of Indians were heard coming down the hill with horrible yells. The inhabitants of the Ottaway town were alarmed. Saunders and Cochran had been adopted in their tribe, and the warriors rallied round them in order to prevent injury. When the Delawares approached the house, they saw a superior force posted to receive them. Saunders stood by the prisoners, tomahawk in hand. The Delawares were very angry, and menaced the captives, but were held in check by the bold front of the Ottaways, who were an overmatch for them.

Finally, they changed their intention, and returned to the camp, where they kept up the frolic all night with much noise. Fitch remained in the stable, half asleep, being occasionally aroused from his drowsiness by the scalp halloo, which was shouted many times. In the hostile demonstration which had been made, Buffalo had taken no part, and he was not seen. The Delawares were still in full riot at sunrise, when, after another scalp halloo, the old chief was discovered coming down the hill, and when near the bottom, *he* too broke out with the dreadful yell. Coming to the house, he spoke very angrily to the prisoners, and ordered them to go up to the camp, and drove them out of the room. Fitch, who was in the yard, and heard all that occurred, thought he would have to meet his fate sooner or later, and that it was best to do what he could to avert it. He therefore got in the window, and going into the room where Buffalo was, put on an air of cheerfulness and said — “How do you do this morning, Capt. Buffalo?” The latter was sitting in a chair and talking to an Indian trader. Getting a low stool, Fitch placed himself down by the chief, laid his arm over his bare thighs, and sat gazing in his face. When Buffalo got up, he made motions that his prisoner should remain. As soon as he was gone, the trader told Fitch that the chief requested him to tell him not to leave the house, as “he always spoke good” to him, and “the Indians were all mad!” Fearful that by this time the prisoners had all been massacred, he run to the door, where he told Hopkins what had occurred, who received the information with a sneer at the seeming friendship manifested towards his informant. When the captives

had been excluded from the house, they had the good sense to disregard the command to go to the camp, for if they had done so, the whole party would most probably have been murdered. When Buffaloe returned to the hill, and found that his directions had been disobeyed, he was much enraged. He returned and searched, with tomahawk and knife, for the skulking captives, and chased such of them as he could find, in order to drive them to the place of execution. The prisoners dodged, and being generally fleet of foot, managed to keep out of his way. Wm. Jarrad had a very narrow escape. He was a short, clumsy man, and could not run fast. Buffaloe started him in a corner of the garden, and being swifter, soon outran him.

Having got before him, and having the knife in his right hand, he aimed a back-handed blow, which, if Jarrad had been nearer, would have struck him about the heart. But luckily at this time, Buffaloe was so far ahead that he was beyond his intended victim, and stretching backward to give effect to his stroke, he reached too far, and, losing his balance, fell at full length. Whilst he was recovering from the shock, Jarrad managed to escape. Buffaloe then went up to the camp. The Indians kept up their frolic till noon, by which time all of them had become dead drunk, and their noise ceased. The next morning the Delawares went off at an early hour, and Buffaloe came down to the house perfectly sober, and ashamed of himself.

Saunders, who was friendly to the prisoners, thought it imprudent for them to go further with the old chief, for fear of some other occurrence of a similar nature. He therefore proposed to take the young squaw and the

prisoners to Detroit in a canoe, leaving Buffaloe to go by land with a horse-load of skins. This was acceded to by the old warrior, who there parted with them, and whom they never met again. Saunders had one man with him, an Indian boy, the squaw, and the prisoners, with some goods. When they got to Lake Erie, Hopkins and Parkerson proposed to rise upon them, and after taking the canoe, to attempt to make the best of their way to Fort Pitt. Fitch remonstrated against such ingratitude, as Saunders had been their friend when they were menaced by the frenzied Indians. The scheme was abandoned, but the proposers were thereby strengthened in their dislike to their companion. The little bark coasted the shores of the lake. At a place called Stony Point, they saw a great number of sturgeon. Six of these they struck with their tomahawks, and took them on board the canoe. When they got into the Detroit river, they took out the spawns and boiled them in fresh water. This mess afforded them the first good meal they had obtained for thirty days. They had no bread, but they got along very well without it. They ate for nearly an hour, after which they desisted for a while, but again ate by turns during the whole afternoon. The next day, they arrived at Detroit.

CHAPTER VII.

THE PRISONER OF WAR IN CANADA.

At the gate of the Fort, Saunders gave up the prisoners to a sentry, and they saw no more of him. They were conducted to the commandant, Major Duposters, who enquired the news. They told him of the capture of Cornwallis. Although this event happened on the 19th of October, 1781, more than six months before the prisoners reached Detroit, knowledge of that important event had not reached the post, so distant was it from the centre of intelligence, and cut off from communication with the eastern part of the continent. The major received the story of the prisoners with much doubt, and took measures to prevent their statement from getting abroad. After having been taken to the Commissary and Provost, they were ordered to be closely confined, and directions were given that no one should have access to them. They soon suspected the reason why they were treated with such severity, and in order to obviate the necessity for rigor, they took every opportunity to spread the news. The sentinels were changed at stated periods, and every fresh guard was informed of the important event. The prisoners also stationed themselves at the windows of the prison, and cried out to the people in the streets, that Cornwallis and all his army were taken. By this means the intelligence was soon spread over the town.

When Fitch was captured on the Ohio, he had with

him a graver. With that instrument he pleased his Indian captors by marking fancy devices on their powder-horns. When he reached Detroit he had it with him, and now gratified his guards by similar work. He was so industrious that during two weeks while at that station, he earned eight dollars, with which he bought himself a supply of sugar, tea, cheese, butter, and other stores for his use during the voyage which he expected shortly to take over Lake Erie. About two weeks after the arrival at Detroit, the prisoners were sent off in an armed brig commanded by Capt. Burnett, a good and humane man. After a tedious voyage over the Lake, during which they encountered a severe storm, they reached Fort Erie, at the entrance of the Niagara river, in two weeks' time. They were immediately despatched thence to Fort Schlosser, and arrived at Niagara that evening, where they remained about a day and a half. They were then placed on board the ship *Lineby*, to cross Lake Ontario. This voyage was very uncomfortable. The prisoners, together with a horse and cow, were placed in the hold, and two persons only were permitted to be on deck at the same time. This uncomfortable situation was luckily of short continuance. The day after their departure they arrived at a fort situate on Carleton Island, at the entrance of the St. Lawrence river. They were confined there for twenty-four hours in a small room without fire or light, and compelled to eat their food raw. Escorted thence to Fort Oswagatchie by a party of soldiers, who were ordered to blow their brains out in case of misbehavior, they gladly heard at the latter place that they were to have new guards, under whose guid-

ance they were marched to Coteau du Lac, their place of destination. Here they were mustered, and their names, birth-places, and occupations noted, under the direction of Capt. Anderson, the superintendent. To an island opposite Coteau du Lac, then named Prison Island, Fitch and twenty others were finally conveyed, on the 25th of May, 1782. This place was the depôt for prisoners taken by the British in the north and north-west. An area of seventy or eighty acres gave ample room for exercise, and the island being situate amidst a dangerous rapid, was deemed sufficiently protected for the purpose of confinement. There were a large number of prisoners there, who were idle, discontented, ready for any kind of mischief, and disposed to think unfavorably of any of their companions who manifested different opinions. Fitch was of an active, industrious temperament, and he could not bear the listless way of life to which he was now introduced. He accordingly commenced preparations to plant and cultivate a spot of ground. One James McKollock aided him, and they cleared a space of twenty pole, which they planted with corn, squashes, peas, cucumbers, and other things, the seeds of which were given them by the British. This project was very unpopular with the other prisoners, and a report was spread about that the intention of the laborers was to give the British a hint, and suggest to them a species of work to which *they* might all be put, for the benefit of their jailors. This was very unjust, and it could have had its foundation only in the fears of those whose laziness caused them to dislike the prospect of any kind of employment.

The prisoners were very carefully provided with rations, and Fitch and McKollock, who were "not great eaters," generally saved about eight pounds of pork every two weeks out of their supplies. With this they obtained, by exchange, tea, butter, cheese, and other luxuries, and with the first produce of this economy Fitch procured a fur cap, which was the first covering which he had for his head since his capture. He now turned his thoughts to the necessity, and, in fact, the comfort of labor in the way of his usual business, and he gives the following interesting account of the expedients to which he resorted :

As soon as I had got my seeds in the ground, I began to think of carrying on my trade, for I could not endure the Thought of being Idle ; and all the tools I had was my old Graver, and no steel on the island to make any with. And all the tools I could find on the Island was an ax, a handsaw, a Chissel, and Iron Wedge fr splitting wood, and a shoemakers hammer, also a fore plain. My first thought was to make a Vice, but before I could make that, I must have a turning lath, to turn the screw ; with the saw, ax, Chissel, and foreplain, I got it compleated. I ought also to have mentioned, that there was an augure and grindstone on the Island. I got a peace of ramrod of a gun, and made the Centures for my Popets ; I also got a large blade of a jack knife, and broke it in two, one part of which I made a Chissel, the other a Gouge for turneing. The Iron wedge I fixed in a Block, and made my anvil. The shoemaker's hammer I forged with, and our common fire, blowed by my mouth or hat, I forged by. I made a punch out of an Iron hoop, and punched two holes thro' each Broken Blade, and then took an Iron Hoop and punched two holes at each end uniform with the first, and bent the Hoops, & Riveted the Broken Blade between the ends of the hoop, and after the Chissel and Gouge was made and hardned, filled the hoop with wood, which made a very good handle. Thus I got my lath completed, and turned an augure for cutting the Box of the Vice, and at the same time turned a peace for the screw. I

then got the Jaws of my Vice, and cut a peace of Paper of an equal weadth, and paisted on to the peace designed for my auger, and laid out my screw, which I sawed round conformable, and in the proper place fixed a peace of iron made out of a hoop, to cut the screw, but was first to make a file to point it properly. I had the Back spring of said Knife, and by axcedent got an old razor Blade, of which I made Chissels, and forged and cut a file out of the spring, which enabled me to complete my vice. After it was done I put jaws to it with Iron hoops nearly as nice as could be done in the City of Philad., that for some time would punch almost any thing that come between them.

Some of the British soldiers obtained for him a flat and saw file at Coteau du Lac. Of the flat file he made a "wire plate." A thin iron hoop was turned into a blow-pipe, the edges being hammered close, and being free from leaks. A "sliding-tongs" to hold buttons was made out of an iron hoop. In ten days he had a "fine set of tools," and was ready to commence work. He bought an old worn-out brass kettle from a soldier. The bottom only was fit to make buttons of. The sides were cut into strips, which were afterward worked into brass wire for the shanks of the buttons. He was now ready to manufacture, but was sadly impeded by the want of borax, with which to prepare his solder. None was to be had nearer than Montreal, and opportunity of sending there and obtaining a return of the article wanted, was not easily to be had by one in his condition. A soldier who was going down was induced to undertake the errand, and to endeavor to obtain the article for him. Whilst he was gone, Fitch bleached ashes and boiled it down, calcined the residuum as well as he could, and made an inferior kind of pearlash, which he intended to use instead of borax. He had

great difficulty to make the solder adhesive with this substitute, but he persevered in his task. Thirty or forty pairs of buttons were made before the soldier returned with the borax. "These had all met with a good sale, and upon some he had cut cyphers with his graver, and he declared that they looked "but little inferior to gold." One John Segar, of Massachusetts, an ingenious, handy man, desired to work with him, and he gave him wages. Whilst embarrassed for the want of borax, they procured enough timber to make twelve wooden clocks, boiled it, and took every means to season it quickly. Some of the prisoners were hired to bring all the wood they could find to the barrack-yard, and were paid off in buttons. A German coal-burner, who was among the prisoners, was induced to turn the wood into charcoal; and Fitch had as much as eighty bushels of this fuel stored away in the loft of the barracks at one time. He also erected a furnace for melting silver; made moulds and crucibles out of sheet iron, and could make silver buttons as well as brass ones. His business was now increasing, and John Reynolds, of Vermont, was taken as an apprentice, and towards the latter end of the time, one Clark, of Virginia, was admitted into the company. During the five months that this party was upon Prison Island, they made nine wooden clocks, which they sold at four dollars each; three hundred pair of brass sleeve-buttons, and eighty pair of silver buttons. Tools were also made to repair watches, and three or four of those articles were put in order by Fitch whilst in captivity. With the proceeds of his industry, he obtained a superfine suit of clothing, plenty of coarse working clothes,

and a good hammock of Russia sheeting, which he swung midway in the barrack, to escape the vermin which the dirty habits of his fellow-prisoners had introduced. He had also five blankets, and two or three cords of wood, laid up for winter. He had also, during the whole time, aided the sick among the prisoners with such comforts as he could procure for them, spending on an average a dollar a week in that way — a very considerable sum, taking into view the means of sale which he had, and the low prices which he was compelled to charge. Beside this, his garden furnished his fellow-prisoners with vegetables and provisions of other kinds, which to the sick were glad substitutes for the unvarying round of pork and other coarse rations. The British officers, oppressed with the monotony of a garrison life, were glad to have any method of passing away the time, and they made his workshop their resort, where they would sit for hours, watching the processes of manufacture, and conversing with the industrious prisoners. By this means he made friends among them, and received many little indulgences at their hands which his companions could not obtain. These manifestations caused considerable envy among the latter, and Parkerson and Hopkins took occasion to inflame their dislike by innuendoes and unfriendly speeches, which caused the manifestation of frequent insults towards him. Having borne this usage for some time, he bethought himself of a means of protection, by appealing to the New England men, as a New England man, and representing the affronts as being offered because he was a Yankee. This policy had its effect; the natives of Massachusetts, Connecticut, and other eastern States, rallied to his support. In a short time

Fitch had a party of defenders as strong as his opponents, which fact kept the latter in check, and caused them to cease their annoyance.

Although it was supposed that Prison Island was guarded by the dangerous rapids in the river surrounding it, those natural obstacles did not prevent some of the captives from making their escape. They would construct rafts at the upper end of the territory, and dare the perilous navigation. Some got off, some were drowned, and some were brought back in irons. These occurrences became so common, that the barracks were picketed in; but this precaution did not suffice. During midsummer, thirty escaped in one night. Ten or fifteen more were caught attempting to get away, and being brought back, were confined in an inside picket. Some of the prisoners in the next barrack to Fitch, began to burrow towards the place of the confinement of their associates. They had proceeded about ten feet beyond the wall, and under the soil of the parade square, when a heavy rain caused the pickets to sink through the burrow, so that all their labor was in vain, and further progress was impeded. In this dilemma some of them consulted Fitch (who was looked upon as an ingenious man) as to what could be done. He told them that he was going to work in the garden that day, suggested that there was plenty of old iron hoops on the island, and that with a file some of them might be easily notched into saws. They took the hint, and acted accordingly. That night forty or fifty got outside of the pickets, and between twenty and thirty escaped from the island.

Capt. Anderson had been succeeded in the command at this post by Capt. Carleton, a humane and kind man.

CHAPTER VIII.

THE EXCHANGE — THE SEA VOYAGE.

IN the beginning of October, intelligence was received that the prisoners had been exchanged, and orders were given for their immediate departure. The announcement was made in the evening at roll call, and they were directed to be ready to go off the next day. Fitch, who had become a man of business, and of fortune, was embarrassed by the order, and he besought more time. The British officers made merry at this, saying, that he was "as rich as Robinson Crusoe, and unwilling to quit his wealth on the desert island." He also requested permission to go with the Vermont people by way of Crown Point, but this favor was denied, and he was ordered to go to an Atlantic port. He therefore made a summary disposition of his effects. His tools he packed in a cedar case, which he took away with him. He had plenty of clothing, and money to buy little luxuries to serve on the voyage, besides having a sum in his pocket.

The prisoners were taken from Coteau du Lac to Montreal. Here Fitch tried to induce some of his companions to desert, and attempt to reach the states by land, but he could get none to undertake so wild a journey. They continued down the St. Lawrence to Quebec, where he and others were put on board the ship John, bound to Boston. For some unaccountable reason the vessel did not sail, but remained before

Quebec for more than a month, during which time there were heavy snows and rains, and the weather was very cold. All the prisoners suffered much, the only fire on board being in the caboose. Whilst the John was thus moored, another ship, the *Baker and Atly*, was put under a cartel commission, and ordered to sail to Philadelphia. On board of that vessel, Fitch and seventy others were placed, much to his dissatisfaction, as he wanted to go to Boston. He remonstrated against the change, but in vain, and incurred the displeasure of Colonel Campbell, an American officer, who had been a prisoner; but now, in consequence of his rank, was placed in command of his countrymen. Captain Tung, a king's officer, was put in commission as commander of the *Baker and Atly*. On the 25th of November they left Quebec, during a violent storm which lasted until they had passed Cape Breton, and was so severe that they had no opportunity of putting the pilot on shore. In this tempest the magnificent ship of the line *Ville de Paris*, and other fine vessels were cast away.¹ The voyage was very unpleasant, there being continual storms and head-winds. Fitch did not get along harmoniously with his companions, especially Colonel Campbell and Captain Tung, with whom he quarrelled. On one occasion it was feared that the ship would go on shore, and our voyager prepared himself in a singular way for the expected

¹ The first-rate ship of the line, *Ville de Paris*, carrying 104 guns, had belonged to the French fleet under Count de Grasse, but was captured in the famous sea-fight in which Admiral Rodney was victorious. Under the English flag and under the command of Captain A. Wilkinson, the *Ville de Paris* left Jamaica in November, 1782, and was never heard of afterward.

catastrophe. Having dressed himself in costume which he thought suitable for the struggle, he put a biscuit in one pocket, and a shoemaker's nippers in the other. With that instrument he thought that if cast ashore he could catch at the sand, sea plants, or whatever object would offer a purchase, and thus prevent his being worked off by a receding wave. The idea was not a bad one, but the wind suddenly changing and blowing off shore as hard as it had blown toward it, these preparations were useless. They were noticed, however, and the next day Captain Tung ridiculed the prudent passenger in the presence of all who were on board, an affront which exasperated Fitch's sensitive nature to great resentment. The succeeding day they were near the capes of Delaware. The sky was clear and a gentle breeze filled the sails. Whilst all were enjoying the contrast between the present pleasure, and past discomforts, the sound of cannon was heard at a distance on the waters. At length a fine man-of-war, with every sail spread, was seen approaching, another frigate following in chase, whilst another was half a mile to windward, and another three miles in the rear. As the leading ship came up, without colors flying, the pursuer fired at her. The Baker and Atly was directly between these combatants, and Captain Tung was scared at his perilous situation, not knowing the relative nationalities of the combatants. He thought it most prudent to hoist the British flag, and was preparing to display it, when the nearest ship, which was but a pistol-shot distant, run up the stripes and stars of the United States. Captain Tung at once saw his danger, and preferred to remain between the combatants rather

than peril himself by what would seem to have been a defiance of a foe which could have sunk his ship with one broadside. The American frigate (it was the *South Carolina*) had no time to challenge or examine the humble merchantman, and the three British frigates continued the chase. When he was out of danger Captain Tung held up to witness the battle. The *South Carolina* fired ten or twelve guns during the afternoon, but towards night the Americans on board the *Baker* and *Atly* had the misfortune to see the American flag hauled down, after (as Fitch thought) a badly managed fight.¹

¹ The *South Carolina* was manned by the State of that name. Other vessels had previously been sent out by the same authority. Concerning the history of its marine, and particularly in regard to the loss of the frigate *South Carolina*, Cooper gives the following particulars:

“Commodore Gillon, who was at the head of the little marine, went to Europe, and large amounts of Colonial produce were remitted to him in order to raise the necessary funds. In his correspondence, this officer complains of the difficulty of procuring the right sort of ships, and much time was lost in fruitless negotiations for that purpose, in both France and Holland. At length an arrangement was entered into for one vessel, that is so singular as to require particular notice. This vessel was the *Indien*, which had been laid down by the American commissioners at Amsterdam, and subsequently presented to France. She had the dimensions of a small 74, but was a frigate in construction, carrying, however, an armament that consisted of 28 Swedish thirty-sixes on her gun-deck, and of 12 Swedish twelves on her quarter-deck and fore-castle, or 40 guns in the whole. This ship, though strictly the property of France, had been lent by Louis XVI. to the Duke of Luxembourg, who hired her to the State of South Carolina for three years, on condition that the State would insure her, sail her at its own expense, and

The Baker and Atly now met with the British fleet, and, instead of continuing the voyage to Philadelphia, was ordered to steer for New York, in company with the three British frigates and the South Carolina.

render to her owner one-fourth of the proceeds of her prizes. Under this singular compact the ship, which was named the South Carolina for the occasion, got out in 1781, and made a successful cruise in the narrow seas, sending her prizes into Spain. Afterwards she proceeded to America, capturing ten sail, with which she went into Havana. Here Commodore Gillon, with a view to distress the enemy, accepted the command of the nautical part of an expedition against the Bahamas, that had been set on foot by the Spaniards, and in which other American cruisers joined. The expedition was successful, and the ship proceeded to Philadelphia. Commodore Gillon now left her, and, after some delay, the South Carolina went to sea in December, 1782, under the orders of Captain Joyner, an officer who had previously served on board the vessel as the second in command. It is probable that the movements of so important a vessel were watched, for she had scarcely cleared the capes, when, after a short running fight, she fell into the hands of the British ship Diomede, 44, having the Astrea, 32, and the Quebec, 32, in company.

"The South Carolina was much the heaviest ship that ever sailed under the American flag, until the new frigates were constructed during the war of 1812, and she is described as being a particularly fast vessel, but her service appears to have been greatly disproportioned to her means. She cost the State a large sum of money, and is believed to have returned literally nothing to its treasury. Her loss excited much comment." — *Cooper's Naval History*, Vol. I., page 212.

Rivington's Royal Gazette, December 25, 1782, says, "The Quebec was commanded by Christopher Mason, the Diomede by Captain Frederick, and the Astrea by Matthew Squires.—They chased the South Carolina eighteen hours, when she fired a stern-chaser at the Diomede, which was returned by one of the latter's bow guns. The Diomede gave her six broadsides, and

During the last part of the voyage the prisoners were treated badly, being locked under hatches, and not more than two being allowed to come upon deck at once. This treatment would scarcely have been submitted to, if the ship had been without a convoy. Although a rescue was spoken of among the Americans, it was not attempted. On Christmas, 1782, forty days after leaving Quebec, the Baker and Atly arrived at New York, the prisoners having been ten weeks on the water from the time they left Prison island. When the ship cast anchor, Fitch wrote to William White, brass-founder, and Richard Laws, cutler, two persons whom he knew, to come and see him and bring him what articles he wanted. Although they had formerly been great friends of his, they paid no attention to him, but told the commissary to attend to him. He concluded that they were afraid that he would ask them for charity, and that they thought it would be economical for them to stay away. This gave him disgust—White and Laws were leading Methodists, to which sect Fitch then belonged, and the affair, with others which have been related, no doubt had an effect upon his mind, and unsettled religious opinions which never were very firm. The prisoners were sent up the river to Dobbs'

she received one from the Quebec, through a running fight of two hours, when her colors were struck to this superior force. She was taken the day after she sailed. She lost six killed and wounded, but the British not a man.

"Fifty German, and eight British soldiers of General Burgoyne's army, taken out of the jail at Philadelphia, and compelled on board the Carolina (rather than submit to be sold by the rebels), were, on this occasion, happily released from a service ever obnoxious to their principles."

ferry, where a parole was asked of them. Fitch refused to give one, without a copy, so that he might know its terms. This act of justice was denied him, and he was finally discharged without it. Meeting one John Burnett who had been a fellow-prisoner, he travelled with him to Warminster, in Bucks County, where they arrived on a Saturday night.

"He went directly," says Longstreth, "to the log-shop where he met with his bosom friend Cobe Scout, as related to me by an eye-witness, Jonathan Delany. 'It was,' said he, 'a rainy Saturday that Fitch opened the shop door, and he and Cobe rushed into each other's arms, and gave vent to their emotions in a flood of tears.'"¹ The next day Burnett, who was a Baptist, attended meeting, where thanks were publicly returned to God for his deliverance from captivity. The announcement drew forth the sympathies of the simple congregation, and a collection was taken up to assist him in his need. With twelve dollars in his pocket, the proceeds of this contribution, and with a sum borrowed from Fitch, Burnett went on towards Kentucky.

¹ "John Fitch, of steamboat memory," by Daniel Longstreth, Bucks County Intelligencer.

CHAPTER IX.

ADVENTURES IN KENTUCKY AND OHIO.

AFTER his return from captivity, Fitch remained some time in Bucks County, without any particular employment. He had not relinquished his belief that vast riches might be made by the selection and purchase of lands in the western country. After the treaty of peace with England, the question, How the lands north-west of the River Ohio should be disposed of, was mooted in Congress. It was thought that they would be sold, to pay the debts of the Confederacy. Fitch was now a land-jobber, and supposing that a good operation might be made by a pre-survey of the country, so that when Land Offices were opened warrants might be taken out immediately for choice tracts, he disclosed his thoughts to some of his friends. He found no difficulty in forming a company to forward such an enterprise. It was composed of Dr. John Ewing, Rev. Nathaniel Irwin, Wm. C. Houston, Jonathan Dickinson Sergeant, Stacy Potts, of Trenton, and Colonel Joshua Anderson, of Bucks County. These gentlemen put £20 each in a fund to pay expenses. Fitch was to have an equal share in the titles, and the money raised was to pay the expenses of subsistence, etc., for the surveying party. Col. Anderson went along, and he took with him some of his friends who were unaccustomed to rough work, and who really were obstacles to the success of the expedition. Although they

should have commenced their labors at early dawn, it was generally eight or nine o'clock in the morning before they could be got to business, and they were soon tired out, so that the progress of the company was but slow. Fitch kept the minutes, made draughts, and at night corrected each day's work; but much time was lost in consequence of the laziness of members of the party.

They began at the mouth of the Hockhocking, on the north-western side of the Ohio, and surveyed up to Wheeling Island, a distance then computed by Fitch to be between eighty and ninety miles. They selected the most valuable tracts in that range, and surveyed about thirty-six thousand acres. They returned to Decker's Fort, from which point they had started, with an intention of going into the woods. But here an obstacle arose from the indisposition of the majority of the party to proceed further. They were afraid of hostile Indians. It had been resolved that they should survey one hundred thousand acres, and but little more than one-third of the task had been executed. Contention ensued, and Fitch determined to get frontier men accustomed to the country, whilst Col. Anderson and his friends, who had seen enough of life in the woods, were preparing to return to Bucks County. With the hands thus obtained, Fitch set out westward, and all who were with him worked so energetically, that they surveyed forty-eight thousand acres in two weeks. Anderson and his party set off homeward two days before their return to Decker's Fort. The frost was now setting in, and nothing more could be done. Fitch remained at the mouth of Hockhocking, one day,

to settle up his affairs, when he also took the road to Pennsylvania on foot. At Wright's Ferry, he overtook Colonel Anderson and his party. Leaving them there, he travelled on, and got to Bucks County a day before them.

Arrived at home, his thoughts turned once more to his children, and in December, 1781, he addressed a letter to his son, of which the following is an extract :

"Heaven forbid that I should endeavor to raise an irreverent thought in your heart against your mother. But our separation, you may be assured, was no trifling matter to me. There was nothing that I more ardently wished for, at the time, than that Heaven would call me to the world of spirits. You, my child, staggered every resolution, and weighed more to me than a mountain of diamonds. Finally, I resolved, and re-resolved, and then resolved again, and gave you a sacrifice to the world more unwillingly than the patriarch of old."¹

Whilst waiting the advent of spring, he became "a brother of the mystic tie." He joined Bristol Lodge No. 25 A. Y. M., of the State of Pennsylvania, on the 4th of January, 1785.² He was a faithful member of the Masonic order, and attached to the institution, as appears by various expressions in his journal.

The share-holders were satisfied with the results of this trip, and with the prospects before them, and they prevailed upon Fitch to take the field early in the spring of 1785. He accordingly left Bucks County in the winter, and crossed the Susquehanna river on the ice. At Monongahela, he met with one John Sterrett,

¹ Whittlesey's Life of Fitch. Sparks' American Biography, page 100.

² Historical Sketches of Bristol Borough, by Wm. Bache, page 53.

to whom he made proposals to accompany him. Hands were also hired, sufficient in number to carry two chains, and the whole party, numbering thirteen, went down the Ohio in the month of March, to the mouth of the Muskingum. They surveyed up that river a distance of eighty-five miles, until they came upon fresh Indian signs; finding a large camp, which had been but recently occupied. They thought it prudent to leave that dangerous vicinity, and taking to their canoes, paddled down the Muskingum, until they reached the Ohio, and thence proceeded to the mouth of the Hockhocking. Up that stream they proceeded about forty-seven miles, surveying the best lands. They reached a large island, about one hundred acres in extent; the stream on each side was choked with large logs, and impassable for canoes. Upon the land were the marks of fresh tracks, and other Indian signs. Fitch decided that he would return, but Sterrett was desirous of proceeding, and offered to go himself to the head of the river Hockhocking, and then cross the country to White Woman's Creek¹ (Walhonding River), a tributary which, joining the Tuscarawas at Coshocton, forms the Muskingum. Thence Sterrett proposed to return by land to the Ohio. This was contrary to the opinion and policy of Fitch, but he reluctantly consented. Sterrett divided the party, and loading each man with twenty pounds of flour, other provisions, and baggage,

¹ This name was applied to it from the circumstance that a white woman named Harris, who in early life was captured by Indians, and became domiciliated among them, lived upon the stream. She had been educated religiously when young, and in later life retained enough of her early education to lament the wickedness of the white people who came to the West.

they parted. Fitch and his companions embarked in their canoes, and proceeded down the river. Before night they saw three Indians standing on the bank, near a great bend, which was seven or eight miles round by the course of the river, but which was only a mile and a half across by land. The darkness was coming on, and the party paddled about a mile, when they ceased, loaded their guns, and inspected them to see if they were in good order. They then proceeded cautiously, and near the end of the bend they heard the Indians walking on the land, stepping among the willows, and breaking off twigs and sticks as they went along. Whether the savages were armed is not known, but they did not fire upon the voyagers nor attempt to molest them. The white men floated on until the night became so very dark that it was impossible to see to go further. They then went on shore, but took every precaution to give no indication of their situation. They kindled no fires, and were very quiet. They rose an hour before day, and waited impatiently until the first glimmer of dawn enabled them to proceed. They succeeded in escaping, and in good time reached the Ohio.

Sterrett and his party were not so lucky. They had travelled not more than eight or ten miles after the separation from Fitch, when they fell in with six Indians. The "hunter" and one of the hands were separated from them and escaped the danger, but the rest were made prisoners. They were kept two nights and a day, when, after taking all their property from them, the Indians set them at liberty. The two men who were not captured returned to Fitch and reported

their disaster, and Sterrett and his companions afterwards joined them. The party then went down to the Great Kanawha, from which they surveyed up along the Ohio, and to some distance inland, to the Muskingum, when they left off. The assistants were discharged and Fitch returned home, believing that one day he would be "a man of fortune." In this trip two hundred and fifty thousand acres were surveyed.

When he reached Bucks County, intelligence awaited him which was unexpected. Whilst he was away, Congress had passed resolutions that the North-Western Territory should be divided into States, and that all lands there should be laid out at right angles, and in sections of one mile square, and should be in that manner located. His expectations, and those of the company, were thereby partially frustrated, as there was every probability that much worthless land would have to be taken in every section, with that which was good. He however deemed it judicious to set off again and re-survey, or rather note the most valuable sections, according to the plan contemplated by Congress. He accordingly went once more to the frontiers, where, hiring three men, they rode through the country, and when they came to good tracts they made notes of the land-marks, so that when the sections were located by official surveys, they could tell which sections were most valuable. Governor Harrison, of Virginia, hearing of these transactions, published a proclamation, forbidding private surveys of lands on the western side of the Ohio. This was aimed particularly at Fitch, but before it was promulgated the mischief had been done, and the admonition was for the

benefit of the company, as it deterred other adventurers from doing that which had already been accomplished by them.

After his return, Fitch petitioned Congress for an appointment as surveyor in the western country, and was backed by good recommendations.¹ Whilst awaiting the result of this application, he made a draft of the North-Western country, from Hutchins and Morrow's maps, with additions from his own knowledge, "to keep the ideas of the country" in his mind. He thought that it might be useful if engraved, and he got a sheet of copper and hammered, polished, and engraved it, and then made a press and printed it.² Speaking of this map afterwards, he said, "It is true it was but *Coursely* done; it was cheap, — portable to any one who wanted to go to the woods, and more to

¹ The following is a copy of that paper: —

"These are to certify that we have been acquainted with Mr. John Fitch for some time past, and that he is a sober and industrious man, and is worthy of confidence for his honesty and integrity, that he understands the business of surveying, and having travelled through a great part of the Indian country, he appears to be well acquainted with it. Should Congress, therefore give him a deputation as surveyor of a district in one of the new States, we believe that he would do honor to the appointment by his knowledge, industry, and fidelity, in the discharge of his duty.

"Given under our hands this 29 Decembr., 1784, at Philadelphia.

"JOHN EWING,

"WM. HUTCHINS,

"CADWALADER MORRIS,

"JONA D. SERGEANT."

² The first copies were printed on a cider press. — *Longstreth.*

be relied upon than any published.”¹ Whilst thus engaged his interests were suffering. Relying too much upon his own merit, and the strength of the recommendations offered by him, he did not push his petition to Congress for appointment as a surveyor with the assiduity necessary, and others who were at the seat of government were working against him. The consequence was that he did not get the appointment. Mr. Hoops obtained it, and Fitch, now fully possessed of the idea of a great invention which had been partly conceived whilst he remained at home, had scarcely time or disposition to regret his failure.

¹ In reference to this map, Mr. Whittlesey says : —

“The general positions of the great rivers and lakes are given with surprising accuracy, when we regard the circumstances under which it was made. Lake Superior appears somewhat magnified to the north and east, but the outlines of lakes Huron, Erie, and Michigan, bear a striking resemblance to more modern representations. The extent of his personal acquaintance with the country may be inferred from some remarks engraved upon the map. For instance, ‘The lands on this lake [Erie] are generally thin and swampy, but will make good pasture and meadow lands.’ — ‘From Fort Lawrence and thence by the mouth of the Scioto, a westerly course, to Illinois, is generally a rich level country, abounding with living springs and navigable waters, the air pure, the climate moderate.’ — ‘This country [Illinois] has once been settled by a people more expert in war than the present inhabitants.’ Regular fortifications, and some of these incredibly large, are to be found, also many graves, or towers, like pyramids of earth. — *Spark’s American Biography*, 2d Series, Vol. VI., page 109.

A copy of this map is now in possession of John L. Longstreth of Philadelphia, son of Daniel Longstreth.

CHAPTER X.

THE INVENTION OF THE STEAMBOAT—JOURNEY TO VIRGINIA.

IN the month of April, 1785, upon a Sunday, John Fitch was walking in "the street road" near Nesha-mony, in Bucks County, in company with James Ogilbee. They had been at a religious meeting, at which the Rev. Mr. Irwin preached, and they were now returning home slowly. A rheumatism, contracted no doubt during his recent surveying tours in the Ohio country, had stiffened the limbs of Fitch, and his progress was somewhat difficult. Whilst he was limping along, a gentleman, Mr. Sinton, and his wife, who were seated in a "chair," drawn by a noble horse, passed them at a rapid pace. The circumstance was not uncommon, but just at that moment the progress of those travellers was so much more rapid than the pace of the pedestrians, that the circumstance set one of the latter to thinking. Mr. Fitch thought that it would be a great thing to have a means of conveyance, without keeping a horse. He considered within himself, whether it might not be possible to find some force which would accomplish this important end. The expansive qualities of steam seem to have been observed by him before that time, and the idea of a steam engine presented itself to his fancy as an efficient method of propelling carriages upon land.¹ At this time, he

¹ This statement is made by Fitch in his papers. It is vouched by James Ogilbee, by certificate published in Fitch's pamphlet,

avers, he was altogether ignorant that a steam engine had ever been invented. Full of enthusiasm with the idea, when he reached home he proceeded to make drafts of a steam land carriage. He worked diligently at this thought for about a week, but doubtless soon became disheartened when he reflected upon the roughness of the common roads in America — the plan of a railway not having presented itself to his imagination.

His own quaint account of the consequences of that discovery is curious. He says:

“I was so unfortunate in the month of April, 1785, as to have an idea that a carriage might be carried by the force of steam along the roads. I pursued that idea about one week, and gave it over as impracticable, or, in other words, turned my thoughts to vessels, which appeared to me that it might be applied to advantage on the water. From that time I have pursued the idea to this day, with unremitted assiduity, yet do frankly confess that it has been the most imprudent scheme that ever I engaged in. The mechanism has been the grandest, altho executed upon a small scale, that was ever executed by mortal man, altho it does not make the grand appearance that it would in a first-rate man-of-war. The difficulties have been infinitely greater, as in a small boat we are confined to room and weight, therefore the works are much more noble than if we had carried one thousand tons one hundred miles in a day. And to reflect on the disproportion of a man of my abilities to such a task, I

“The Original Steamboat Supported.” Mr. O. says a gentleman and his wife passed us by in a riding-chair; he (Fitch) grew immediately inattentive to what I said. Sometime afterward he informed me that then the first idea of a steamboat struck his mind. James Scout, under date April 15, 1788, certifies that Fitch told him that while walking with Ogilbee he first thought of a steamboat in consequence of Sinton’s passing him rapidly; and that in May or June following Fitch showed him (Scout) a plan of the boat on paper.

am apt to charge myself with being deranged at the time of my engaging in it, and had I not the most convincing proofs to the contrary, that I have now by me, I most certainly should suppose myself to be *non compos mentis* at that time.

But on examining over my papers, I find that there was 46 capital, and many of them principal characters, for Philosophy and machanism, that gave me their opinions that the scheme was rational. I may add to them the Committee of the Assembly of Virginia of 7 members, of Maryland 5, of Pennsylvania 3, and to that number 27 that have engaged and advanced money on it, which are generally men of the first character — in all 90 — that has testified either by Certificate or otherwise that I absolutely was in my senses at the time.

Yet notwithstanding all this, I should have doubted both them and myself, had not the God of Nature testified the same. What I call Lunecy, is a train of deranged unconnected ideas. It is well known that a steam engine is a complicated machine, and to make that and connect it with the works for propelling a boat, must take a long train of Ideas, and them all connected, and no one part of them disjointed; for the Laws of God are so positive that the greatest favorite of Heaven would not succeed contrary to the fixed Laws of Nature, no sooner than the most profane sinner.

I have now made use of a long train of reasoning to prove that I was not a *Lunatic*, and doubt not but that my reasons will convince the world in general, that I was not. Yet, notwithstanding the infallible evidences which I have produced, it does not bring full conviction with me; for had I the abilities of *Cissaroe*, it ought to be esteemed madness in me to have undertaken it in my state of penury. Had I been a Nobleman of £3000 per year, it would beary justified my Conduct, than as the world from the evidence which I have produced are obliged to justify my Conduct. I, on the other hand, have a right to declare myself a Madman, and I think I can prove this on the following principles:

As I know of nothing so perplexing and vexatious to a man of feelings as a turbulent Wife and Steamboat building. I experienced the former, and quit in season, and had I been in

my right senses, I should undoubtedly treated the latter in the same manner; but for one man to be teised with Both, he must be looked on as the most unfortunate man of the world. Therefore I find I must leave the World and myself as much in the dark as ever about my interlects, and inform them how I proceeded."

Discouraged by the difficulty of completing land carriages, Fitch turned his attention to the perfecting of some method of propelling vessels upon the water. He immediately set to work with ardor to perfect the draft of a boat to be moved by steam, and after two or three weeks he took his drawings to his friend, the Rev. Mr. Irwin, of Neshamony. The latter had in his library "Martin's Philosophy,"¹ in which was a description of a steam engine. "Although it was not to my credit," confesses Fitch, frankly, "I did not know that there was a steam engine on earth, when I proposed to gain a force by steam;" and he adds, that upon being shown the drawing at Mr. Irwin's, he was "very much chagrined." But upon reflection this knowledge strengthened his resolution, now being assured that the machinery would not fail of propulsion, if he could gain the force.

The first and most obvious course, was to try by experiment to obtain a proper method of propulsion, by which the vessel could be moved by the active power. In casting about for the best means, paddle-wheels similar to those afterward used by Fulton, seem to have suggested themselves. Mr. Longstreth says:²

¹ "Philosophia Britannica," by Benj. Martin. London, 1747. This contains descriptions of Newcomen's, Savary's, and Cowley's old-fashioned atmospheric steam engine.

² "John Fitch of steamboat memory." — Bucks Co. Intelligencer. Watson's Annals of Philad., Vol. II., page 450.

"It was in this log shop [Cobe Scout's] that Fitch made his model steamboat, with paddle-wheels as they are now used.

The model was tried on a small stream on Joseph Longstreth's meadow, about half a mile from Davisville, in Southampton township, and it realized every expectation. The machinery was made of brass, with the exception of the *paddle-wheels*, which were made of wood by Nathaniel B. Boileau, whilst on a visit during vacation from Princeton College.¹

¹ Daniel Longstreth deserves honor for his efforts to impress upon his countrymen the just merits of John Fitch. He was the first person who, after the circumstances attending the original steamboat experiments were generally forgotten, attempted to interest the world in the history of this neglected man. His father, Daniel Longstreth, of Bucks County, had been the friend and associate of Fitch, and from his lips young Longstreth had often heard the singular story of the neglected genius, of whom he also had some memory among the recollections of his boyhood. After the publication of Colden's *Life of Fulton*, Daniel Longstreth the younger, pained at the cold disdain with which the claims of the original inventor of steamboats was treated, endeavored to call attention to the labors of the friend of his father. He succeeded in interesting John F. Watson, the author of "*Annals of Philadelphia*," in the matter, and the brief notice taken by the latter of the merits of Fitch, has done much to give interest to a history but little understood. Concerning Daniel Longstreth the younger, the following particulars have been obtained from Wm. J. Buck, author of the *History of Bucks County*:

His ancestor, Bartholomew Longstreth, was an early settler of Warminster tp., Bucks Co., having come from Yorkshire, Eng., in 1699, and was married to Ann, the daughter of John Dawson, an early settler of the present village of Hatborough. B. L. built himself a house in Warminster about the year 1714, not far from the present village of Johnsville. Daniel L. was a farmer, and in addition kept a boarding-school for boys. He died in Warminster tp. (5 miles N. E. of Willow Grove) about the year 1850, at an advanced age. He was regarded by many of his neighbors as an eccentric man. His greatest study was astronomy. He was a man of blameless life, and was much

Mr. Boileau, a highly respectable man, who was at one time an influential politician in Pennsylvania, and who was Secretary of State under Governor Snyder, made this statement to Daniel Longstreth.¹

respected. Himself and ancestors belonged to the society of Friends. Most of Watson's information concerning Fitch he derived from Daniel Longstreth, whom he calls in his Annals, "D. L."

Charles Whittlesey, of Cincinnati, also has done much to awaken attention to the claims of Fitch. He published a pamphlet in 1845, entitled "Justice to the Memory of John Fitch," and in 1845 wrote A Sketch of the Life of John Fitch, Sparks' American Biography, Vol. 6, new series, which contains eighty-eight pages.

¹ "The Hon. Nathaniel B. Boileau's father was Isaac Boileau, who came from Long Island, and settled in Mooreland [Bucks County, Pennsylvania,] about 1750. He was descended from ancestors driven from France by the repeal of the edict of Nantes. During the Revolution he was the ardent friend of his country; he died October 22, 1803, in the 81st year of his age. Nathaniel was born on his father's plantation, near Hatborough, in 1762, and at an early age graduated at Princeton College, though he never adopted a profession. For twelve years he was an active member of the State legislature, where he took a leading part in the impeachment of the judges in 1805-6. In 1808 he was appointed Secretary of State by Governor Snyder, and continued the entire period of three terms. This was a trying time in the history of our State, and embraced the last war with England. During his official intercourse he won the entire confidence of Governor Snyder, and returned his warm friendship ever afterward. In 1817 he was a candidate for Governor, but the choice fell upon the Hon. William Findley. In 1835, Governor Ritner appointed him Register of Wills for Montgomery County, which was the last office he held, and since 1839 he lived in retirement on his farm in the lower part of Hatborough, adjoining the academy. In 1849 he removed to Abington, where he died the 16th of March, 1850, at the

Mr. Whittlesey says upon the same subject : —

“The buckets of the wheels were found to labor too much in the water, entering, as they did, at a considerable angle, and departing at the same. They lost power by striking at the surface and afterwards lifting themselves out of water. This led to the substitution of oars or paddles.”

A further evidence will be seen in the letter of Dr. Ewing, which will be shortly quoted, which shows that his method was by turning wheels, or a *single* wheel in the water. A still further confirmation is found in the *General Advertiser* of November 29, 1791. The difficulty under which the small paddle-wheels labored is there concisely noticed.

Whilst engaged in experiments, he had printed a number of copies of his map of the North-Western country for sale, and thus announced the fact in the *Pennsylvania Packet* of June 30, 1785 : —

“JOHN FITCH,

Having traversed the country North-West of the Ohio, in the several capacities of a Captive, Surveyor, Traveller, &c. As the result of his labors and remarks, has completed, and now wishes to sell, a new accurate map of that country, generally distinguished by the Ten new States, including Kentucky, which opens immense sources of wealth and advantageous speculation to the citizens of the United States, and is, therefore, an object of general attention. And having performed the engraving and printing himself, is enabled to sell at the very small price of a French crown.

“To be sold by William Prichard, on the North side of Market Street, opposite Laetitia Court.”

advanced age of 88 years, in the midst of a warm circle of friends. In all the relations of life, he commanded the esteem and confidence of the community, and was favorably known for many kind and benevolent acts.” — *History of Mooreland*, by William J. Buck; *Collections of the Historical Society of Pennsylvania*, Vol. I., page 212.

Every thought encouraged Fitch in his plan, and after spending more time upon the details of his invention he determined to seek the assistance of Congress. On the 20th of August, 1785, Dr. John Ewing, provost of the University of Pennsylvania, gave Fitch a letter to William C. Houston, formerly a member of Congress, and who, by some mistake, was supposed to be a representative at that time.

“PHILAD., 20 August, 1785.

“DEAR SIR:—I have examined Mr. Fitch’s machine for rowing a Boat, by the alternate operation of steam, and the atmosphere, and am of opinion that his principles are proper, and Philosophical, and have no doubt of the success of the scheme if executed by a skilful workman. It is certain that the extensive force of Water, when converted into steam, is equal to any obstruction that can be laid in its way, so as to burst any metalick vessel in which we would endeavour to confine it, and the application of this force *to turn a wheel in the water*, so as to answer the purpose of Oars, seems easy and natural by the machine which he proposes, and of which he has shown me a rough model. Should such a machine be brought into common use in the inland navigation through the United States, it would be exceedingly advantageous in transporting the productions of America to market, and thereby greatly increase the value of our back Lands. — He proposes to lay his invention before Congress, and I hope he will meet with the encouragement which his mechanical genius deserves. The project deserves a trial to be made of it, to see how far the execution will answer the theory; the countenance of Congress in these productions of Genius, will encourage others and thereby give birth to discoveries that may be infinitely Beneficial. As you are a Gentleman of Knowledge in these matters, I make no doubt of his receiving your patronage so far at least as to give him an opportunity of laying his scheme before Congress.

“I am, sir,

“&c., &c.,

“JOHN EWING.

“TO WILLIAM C. HOUSTON, Esq.”

The letter of Dr. Ewing to Mr. Houston, was delivered to the latter in a day or two after it was written. Mr. Houston, not being a member of Congress, enclosed the recommendation of Dr. Ewing to Lambert Cadwallader, then a delegate for New Jersey, accompanying it with a letter of his own in the following terms:—

“TRENTON, 25 August, 1785.

“SIR:—I have examined the Principles and construction of Mr. Fitch’s steamboat, and though not troubled with a Penchant for projects, cannot help approving the simplicity of the plan. The greatest objections to most pretensions of this sort, is the delicacy and complication of the machinery. This does not seem liable to such objections; as to the moving force of the whole, we know very well that the power of steam is beyond conception, it is everything but omnipotent, and almost that.

“The model is plain, and you will at once form a judgment of its probable general effect. The difference produced by standing or running water is to be more attentively considered. I enclose you Dr. Ewing’s letter. He is certainly an able judge in these cases, and I cannot help expressing a wish that it may be practicable to do something toward procuring an experiment. The person who offers it, you know. He is a man highly deserving, as modest, ingenious, enterprising and of good morals.

“I am, sir,

“&c., &c.,

“WILLM. C. HOUSTON.

“HONORABLE L. CADWALADER, ESQRE.”

Congress was then in session in New York, and while upon his way thither Fitch stopped at Princeton, where, having shown his plans to Dr. Smith, provost of the College, the latter gave him the subjoined letter to the Hon. Mr. Read, member of Congress from North Carolina:—

"PRINCETON, Aug. 27, 1785.

"SIR:—The bearer, Mr. John Fitch, has shown me a model of an instrument to row a Boat against streams, which appears to me to be constructed on just and Philosophical principles. As he desires to propose it to Congress, in order to obtain their encouragement and assistance to construct a Boat on the same principles, he has requested to be introduced to some gentlemen of distinction in the honorable Body, supposing it may be of use to forward his intentions. After convincing them of its practicability and utility, if he should obtain adequate assistance for that purpose, he makes no doubt that Congress will give him such reward as they may think his Mechanical ingenuity and the benefit of his inventions may entitle him to, or perhaps that they will so recommend him to the Legislators of particular States that are likely to derive the most benefit from it, as that he shall not want a proper compensation. You will best judge, sir, how far Congress may think it their duty to attend to, or to promote, an object of the kind, or to refer it immediately to particular Legislators.—But I am assured that if it be consistent with their duty, a scheme that is the effect of ingenuity and application, and promises to be of public service, will not want a proper patron in you.

"I am, sir,

"&c., &c.,

"SAML. SMITH.

"HONORABLE MR. READ."

The following was the letter to Congress:—¹

"August 29, 1785.

"SIR:—The subscriber begs leave to lay at the feet of Congress, an attempt he has made to facilitate the internal Naviga-

¹ It is to be regretted that reports of the proceedings of the Congress of the Confederation are very meagre. The published minutes are composed of short notes, which seem to have been kept as a record of the most important matters *only*. Motions which were unsuccessful, reports upon subjects which were never definitely acted upon, and the presentations of petitions

tion of the United States, adapted especially to the Waters of the Mississippi.

"The Machine he has invented for the purpose, has been examined by several Gentlemen of Learning and Ingenuity, who have given it their approbation.

"Being thus encouraged, he is desirous to solicit the attention of Congress, to a rough model of it now with him, that, after examination into the principles upon which it operates, they may be enabled to judge whether it deserves encouragement. And he, as in duty bound, shall ever pray.

"JOHN FITCH.

"His Excellency, the President
of Congress."

The application was referred to a committee, consisting of Messrs. Read and King of Massachusetts, and Mr. Henry of Maryland. This committee made no report, much to the disappointment of the inventor.

Failing here, in September he made an application for assistance to the minister of the King of Spain, who was then at New York. The ambassador listened to the proposals with interest, and gave encouragement,

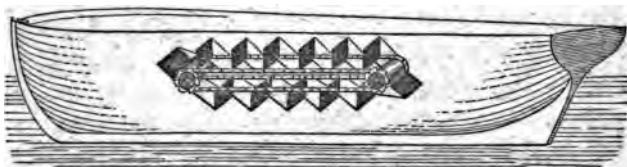
and memorials which were referred or laid on the table, are not noticed. This peculiarity has prevented the procurement of some important documents, etc., confirming the statements of Fitch as to what was done by Congress in reference to his steamboat plan. Wherever it has been possible to find evidence on the subject in other quarters, his narrative has been confirmed to the letter, and he was so truthful that the writer of this biography has had no difficulty in accepting his statements with confidence. The reader is requested to bear this in mind as we proceed. The letter to Congress here given is referred to by Fitch, but no copy is given, nor is there any note of it on the minutes of Congress as published. Dr. Thornton supplied this document in his pamphlet, "A Short Account of the Origin of Steamboats," written in 1810.

but, like a faithful subject, he desired that the invention should be for the benefit of his Royal master. Fitch, on the contrary, wished that the invention should be for the advantage of mankind. If he had accepted the offers of the Spanish minister, he might have been rich. "God forbid!" exclaims he, writing in great distress of mind and while meditating suicide in 1792, "God forbid that I should ever be in the like error again, if ever in my power to prevent it. The strange ideas I had at that time of serving my country, without the least suspicion that my only reward would be nothing but contempt and opprobrious names, has taught me a mighty lesson in mankind—and to do it at the displeasure of the whole Spanish nation, is one of the most impolitic strokes that a Blockhead could be guilty of."

Fitch returned to Bucks County very much incensed at the cool treatment he had met with in New York, and with a determination to persevere and show the committee of Congress that they were "ignorant boys." He had not much else to occupy his mind, for in the meantime a new misfortune had fallen upon him. Congress had resolved that the public lands should be sold at public vendue, and in such a manner that all the hopes of the land company, in consequence of their superior knowledge, were swept away. This was a severe disappointment not only to our adventurer, but to his associates. In reference to his own hopes he said, "Thus was an immense fortune reduced to nothing at one blow. I could have located two hundred thousand acres, beside what the company were entitled to for the halves, and found plenty of encouragement."

He had nothing to do now but to apply his energies to the project of the steamboat, to which he lent every thought.

On the 27th of September, 1785, he presented a drawing of his boat and models to the American Philosophical Society, at Philadelphia, and was permitted to attend their meeting. He said, "that upon that occasion no new ideas were advanced more than he had previously thought of, and some of the most material were not touched."



John Fitch's model of Sept., 1785, with endless chain and floats and paddle-boards, in possession of the American Philosophical Society.

He had now modified his plan by substituting for paddle-wheels an endless chain, passing over screws or rollers, to which blades or floats were attached to answer as paddles.



A section of chain and paddle

The model thus prepared is the only memorial of Fitch now preserved by the society. The drawings, descriptions, and all other papers are missing. The following entries on the minutes are the only recorded evidence on the subject:

"Tuesday, September 27, 1785

"The model, with a Drawing and Description, of a Machine for working a Boat against the stream by means of a steam-engine, was laid before the Society by Mr. John Fitch."

"December 2d, 1785."

"A copy of the Drawing and Description of a Machine for rowing a boat against the current, which sometime ago was laid before the Society by Mr. John Fitch, he this evening presented to them."

He now determined to set out for Kentucky, in the hope that encouragement might be obtained there. His intended course was by way of Virginia, where he wished to stop at Richmond to look after his patents. Not having relinquished his idea of the steamboat, he appealed to the distinguished American whose reputation in philosophy had attained a world-wide celebrity, in the anticipation that he would extend a helping hand to genius struggling against the most dispiriting difficulties. He tells the story thus, in 1790:—

"Before I went I called on Dr. Franklin, who spoke very flatteringly of the scheme, and I doubted not of his patronage in it, although I could obtain nothing from him in writing before the 2nd day of December, when he laid a scheme of a steamboat before the Philosophical Society; but not knowing him then as well as I do now, before I set out I wrote him a letter on the occasion, setting forth the practicability of the scheme, the Great use it would be to the United States, and praying his patronage, and of my determination of Returning from Kentucky early in the Spring; but as the Dr. had other things in view, he did not answer it, but being desirous of *gaining the Honour to himself*, laid down some what of a different plan to the Philosophical Society in December. Had the Doctor acted himself, he might easily ingroced the whole honours, as I was no ways tenacious for that, but my grand Views were to render service to my Country, and Chastize the Ignorant Boys of Congress."

The letter thus referred to, is in the possession of the American Philosophical Society, and is as follows :

BUCKS COUNTY, 12 October, 1785.

MAY IT PLEASE YOUR EXCELLENCY —

The subscriber most humbly begs leave to trouble you with something further on the subject of a Steam Boat. His sanguine opinion in favour of its answering the purpose to his utmost wishes, emboldens him to presume it will not give offence. And if his opinion carries him to excess, he doubts not but your Excellency will make proper allowance. As it is a matter in his opinion of the first Magnitude not only to the United States, but to every Maritime power in the World, as he is full in the belief that it will answer for sea Voyages, as well as, for inland Navigation, in particular for Packets where there should be a great number of Passengers. He is of opinion that few for a short Voiage, would not exceed the weight of water for a long one, as it would produce a constant supply of fresh water. He also believes that it would be able to make head against the most Violent Tempests, and thereby escape the dangers of a Lee Shore. And that the same force may be applied to a Pump, to free a leaky Ship of her Water. What emboldens him to be thus presuming in the good effects of the machine, is the almost Omnipotent force by which it is actuated, and the very Simple, easy and natural way by which the Screw or Paddles are turned to answer the purpose of Oars.

I expect to return from Kentucky about the first of June next, and nothing would give me more secret pleasure than to make an Essay under your Patronage, and have your Friendly assistance in introducing another useful art into the World.

With the most perfect Respect,

I am your most Devoted

Humble Servant,

JOHN FITCH.

His Excellency, Dr. FRANKLIN.

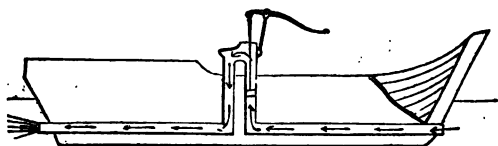
The presentation of Franklin's plan referred to by Fitch is noted in the minutes of the American Philosophical Society, as follows :

DEC. 2, 1785. Mr. Hopkinson presented to the Society a Dissertation written by Dr. Franklin, containing a great number of curious and useful observations and discoveries relative to voyages and maritime affairs, which being read,

On motion, ordered that the thanks of the Society be returned to his Excellency for this entertaining and valuable communication.

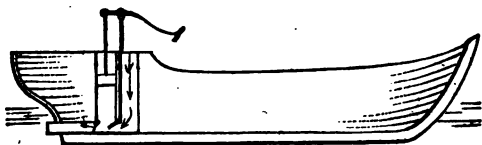
The accusation made by Fitch against Franklin is not borne out precisely "in manner and form" as preferred, but it is substantially sustained. The article "on Maritime Affairs" is published in the Transactions of the Society, but easy reference for general purposes may be made to Sparks' Life of Franklin, Vol. VI., page 463. It purports to be a dissertation written at sea, on board the London packet, Captain Truxtun, August, 1785, and is in the shape of a letter to David Leroy, Paris. The subjects treated of are various, and have no reference to steam navigation whatever. Among other things, Dr. Franklin speaks of plans of propulsion by circular paddles on the circumference of wheels—a method frequently used, but which had never been found so effectual as to encourage a continuance of the practice. He then refers to the plan of M. Bernoulli, as being most singular. It was to have fixed in the boat a tube, in the form of an L, with an upright funnel opening at the top, convenient for filling it with water, which, descending and passing through the lower horizontal part, and issuing from the middle of the stern of the boat, under the surface of the water, should push the boat forward. The Doctor observes that a defect of this plan would be, that every bucketful dipped or pumped from one side, or both, must have its *vis inertię* overcome, so as to receive the motion

of the boat before giving motion to its descent, and thus be a deduction from the moving power. To remedy this, Dr. Franklin proposed that another tube, same shape, having a valve for the entrance of the water below at the bow should be placed along-side the other L pipe, back to back, thus . The water pumped in front would thus help to give motion to the boat.



Dr. Franklin's plan of a Pumping Boat to go by ejection of water.

He also suggested that a stream of air might be made to issue from the stern, so as to give means of propulsion by the reaction against the water. In all these suggestions there is no hint of employing steam to do the pumping; and for aught that appears, Dr. Franklin, who speaks of it more as a curiosity than of presumed utility, contemplated no other moving power than the strength of men.



Dr. Franklin's plan of an Air Boat to go by firing out air against water.

But, there is evidence to sustain Fitch from other sources. The most important is an article-printed in the *General Advertiser* for Nov. 29, 1791, which was

edited and published by Benjamin Franklin Bache, a grandson of the philosopher. What is therefore said in relation to Franklin's plan for a steam-boat has the stamp of family authority. The article was an *editorial*. It depreciates Fitch's efforts, and asserts that Franklin proposed to apply steam to a boat for pumping and ejecting water, as early as 1785. It is also curious upon account of its containing a suggestion of the employment of a screw propeller. The following is what was said on this subject :

Some attempts have been made to propel boats by the force of steam. The power of steam is certainly prodigious, and there can be but little doubt of its answering this desirable object, if properly applied. Hitherto, the machinery made use of has been complex, occasioning much friction, and wanting frequent repairs. Besides, the force has been applied to give motion to paddles, whereby *power* has been always misapplied. In the first experiments the force was applied to turning an axis, which carried a number of paddles as radii. In this mode of proceeding, power was lost; for when the paddle began to act in the water, it acted obliquely, tending but in a small degree to propel the boat, but chiefly only to lighten it. In this manner of operating, the paddle in its progress produced more and more of its desired effect, until it acquired a perpendicular position, at which point only for an instant all its force acted in propelling, after which, while emerging its propelling power decreased, and its action tended more and more to sink the boat deeper. To avoid this misapplication of power, a more complex and unwieldy machine was constructed, in which the paddles dipped into the water perpendicularly when operating, acting altogether in propelling, and emerged also in a perpendicular position. This contrivance had its inconvenience. While the paddle was immersing and emerging it opposed a considerable surface to the action of the water, and checked the progress of the boat.

Dr. Franklin, in the year 1785, planned a simple method of applying steam to give motion to boats. He proposed that the

steam should act immediately upon a piston, which should move in a cylinder perpendicularly fixed in the centre of the boat. The bottom of this cylinder connected with a horizontal cylinder fixed from bow to stern, and there communicating with the surrounding water. Two valves in the horizontal cylinder on each side of the perpendicular one, each opening towards the stern. When in this simple machine the piston rose by the force of the steam, the bow valve would open and the water rush in with considerable force, fill it, and also the perpendicular cylinder. The piston would then descend, the bow valve shut, that nearest the stern open, and the body of water rush thro' the after part of the horizontal cylinder, and out with considerable violence against the surrounding fluid, and consequently propel the boat.

He conceived also that when the piston ascended the boat would acquire a small quantity of motion by water being sucked in at the bow. These cylinders he proposed should be of a considerable diameter, the exact size to be fixed by experiment, and suggested the propriety of doubling the apparatus, the pistons to work alternately.

The simplicity of this contrivance, and the little friction it would occasion, are considerable recommendations to it; but a striking objection to this is a waste of power. The whole force of the water rushing out of the stern would not tend to propel the boat, as the surrounding fluid would not oppose an absolute resistance to the column of water acting on it.

The following is proposed as free from the objections to the above contrivance.

Let the steam act in turning an axis, bearing a number of thin metal vanes fixed like the vanes of a windmill, in the proper angle, and let these vanes act under water at the bow or stern of the boat, as most convenient. By the rotary motion of the axis the vanes would all continually screw themselves into the water, and give motion to the boat. All the power would here propel the boat, and the continued action of the vanes give the advantage of accelerated motion. It might perhaps be found more convenient to apply the force of two sets of vanes, one fixed on each side of the boat. This might, without much complexity, be done.

An actual experiment gave rise to this idea.

At the time when balloons were in vogue in France, and all heads were at work in devising means to give them motion *ad libitum*, an ingenious mechanist, to the bow of a common boat, adapted four vanes like those of a windmill, but smaller, and gave motion to them by means of a simple crank. The boat thus equipped, by the action of the vanes in the air crossed the Seine in less time than another crossed the same river by means of a pair of common oars, and returned to the place whence she started, notwithstanding the force of the current.

Mr. Latrobe confirms this statement, that Franklin advocated the use of a steam-engine to draw in and eject water from a boat. He made a similar averment in his report on steam-engines, presented to the American Philosophical Society, in 1803. Dr. Franklin was the chief among the patrons of James Rumsey, whose steam-boat was, in principle, a practical adaptation of Franklin's plan, using the steam engine to do the work of pumping in and ejecting water.

It is a matter for conjecture, whether Rumsey was not altogether indebted for his idea of propulsion to the paper of Dr. Franklin, which was published in the Transactions of the Philosophical Society, Vol. II., page 294, which volume was issued from the press about the beginning of July, 1786.

On the 20th of October, 1785, Fitch left Philadelphia, on his way to Kentucky. He called upon Wm. Henry at Lancaster, Pennsylvania, who told him that he had himself thought of steam, as early as 1776, and held some conversations with Andrew Ellicott upon the subject, and that Thomas Paine had suggested it to him in 1778, but that he never did anything in the matter, further than drawing some plans, and inventing

a pattern of a "steam-wheel," which he showed Mr. Fitch, and said that as the latter "had first published the plan to the world, he would lay no claim to the invention." He promised that he would make a model of a steam-wheel, as his visitor did not exactly understand how it would work. This undertaking was never fulfilled.

At Fredericktown, in Maryland, Fitch visited Thomas Johnson, Ex-Governor of Maryland. It is probable that he there, for the first time, learned that James Rumsey, of Virginia, had, in the previous year, made some experiments with a boat designed to move *against* streams, by the force of the water acting on a wheel, to which setting-poles were attached. This mechanism, with some manual assistance, had been successfully tried. In their conversation, Fitch averred that Gov. Johnson said nothing about Rumsey's being about to employ steam for the purpose of propulsion, and he was easy in the belief that Rumsey's plan was entirely different from his own. Gov. Johnson advised him to call on General Washington, on his way to Richmond; and accordingly he stopped at Mount Vernon.

Washington received him with courtesy and listened to his plans, but did not give him the encouragement he so much desired. Fitch says, in reference to this great man, "I believe that his greatest failure is a too great delicacy of his own honour, which we hardly can suppose can be carried to excess. The certificate which he gave to Rumsey's pole-boat was, perhaps, one of the most imprudent acts of his life."¹ The projector saw

¹ This certificate, dated September 7th, 1784, set forth that according to the experiment witnessed by Washington, Mr.

signs of agitation in his countenance, and he asked him if his boat was on the same plan as Rumsey's. Washington replied that he could "not give Rumsey's plan by negatives." After this he went out, and return-

Rumsey had "discovered the art of working boats by *mechanism* and small manual assistance against rapid currents." In his petition to the Legislature of Pennsylvania, presented November 26, 1784, Rumsey declared that he proposed "to construct boats of ten tons burthen each, which shall sail or be propelled by the combined influence of certain *mechanical* powers thereto applied, the distance of between twenty-five and forty miles a day, against the current of a rapid river, notwithstanding the velocity of the water should move at the rate of five miles the hour, and upwards, with the burthen of ten tons on board, to be brought at no greater expense than of three hands." Manuel Eyre afterwards certified that at the time there was no mention, nor any idea held up, to the committee of the Pennsylvania Legislature, that Rumsey's boat was to be propelled by *steam*.

Long after the two projectors had passed away, and when their contests had been forgotten, the following letter of General Washington to Hugh Williamson, M. C., was published. — See Sparks' Washington, Vol. I., page 104. It bears date, March 15th 1785, before Fitch's plan of a steam-boat was conceived, and it gives Washington's own explanation why he gave the certificate to Rumsey, of 1784, which was *not* for a *steam-boat*.

"Mr. McMeiken's explanation of the movements of Rumsey's boat is consonant to my ideas, and warranted by the principles upon which it acts. The *small manual assistance* to which I alluded, was to be applied in the water and to the steerage. The *counteraction* being proportioned to the *action*, it must ascend a *swift current* faster than a gentle stream, and both with more ease than it can move through dead water. But in the first there may be, and no doubt is, a point beyond which it cannot go, without involving difficulties which may be found insurmountable. Further than this I am not at liberty to explain myself, but if a model, or a thing in miniature, is a just representation of a greater thing in practice, there is no doubt of the

ing after a time, "told me," says Fitch, "that it was not the same as Rumsey presented to him at Bath, but that, sometime after that, at Richmond, he had mentioned something of the sort to him, but he was so

utility of the invention. A view of this model, with the explanation, removed the principal doubt I ever had of the practicality of propelling against a stream by the aid of a *mechanical power*, but as he wanted to avail himself of my introduction of it to public attention, I chose previously to see the actual performance of the model in a descending stream before I passed the certificate, and, having done so, all my doubts were satisfied."

General Washington was a friend of Rumsey, and he deemed it prudent to inform him that a new inventor was in the field. This letter, like the other quoted above, was printed long after the parties were dead (See Sparks' Washington, Vol. XII, page 279). In this epistle it will be again seen that the only reference is to a *mechanical boat*. No reference is made to a *steam-boat*.

"MOUNT VERNON, January 31, 1786.

"SIR:—If you have no cause to change your opinions respecting your *mechanical boat*, and reasons unknown to me do not exist to delay the exhibition of it, I would advise you to give it to the public as soon as it can be prepared conveniently. The postponement creates distrust in the public mind, it gives time also for the imagination to work, and this is assisted by a little dropping from one, and something from another, to whom you have disclosed the secret. Should a mechanical genius therefore hit upon your plan, or something similar to it, I need not add that it would place you in an awkward situation, and perhaps disconcert all your prospects concerning this useful discovery, for you are not, with your experience in life, now to learn, that the shoulders of the public are too broad to feel the weight of the complaints of an individual, or to regard promises, if they find it convenient and have the shadow of plausibility on their side to retract them. I will inform you further that many people in guessing at your plan, have come very near the

engaged in company that he did not attend to it, but he made no mention of Rumsey's writing to him on the subject." This is the statement in the MS. autobiography. In "The Original Steam-boat Supported," Fitch says, in reference to this interview, that Washington informed him "that the thought of applying steam was not original, that Mr. Rumsey had mentioned steam to him," but nothing that passed in the conversation with General Washington had the least tendency to convey the idea of Mr. Rumsey's relying upon steam. * * * "Knowing that the thought of applying steam to boats had been suggested by other gentlemen long before, I left his Excellency, General Washington, with all the elated prospects that an aspiring projector could entertain, not doubting but I should reap the full benefit of the project, for although I found that *some* had *conceived* the thought before, yet I was the first that exhibited a plan to the public, and was fully convinced that I could not interfere with Mr. Rumsey, otherwise the well-known candor of General Washington would have pointed out such interference."

At Richmond, Fitch found that his deeds were made out for his lands in Kentucky, and being infatuated with the scheme of the steam-boat, he was persuaded by John Edwards, a delegate in Congress from Ken-

mark, and that one who had *something of a similar nature* to offer to the public, wanted a certificate from me that it was different from yours. I told him that as I was not at liberty to declare what your plan was, so I did not think it proper to say what it was not.

"Whatever may be your determination after this hint, I have only to request that my sentiments on the subject may be ascribed to friendly motives, and taken in good part."

tucky, to petition the Legislature of Virginia for assistance. His memorial was presented by James Madison. A committee was appointed, the members of which spoke favorably to the inventor in reference to the subject, but made no formal report. Patrick Henry, who was the Governor of Virginia, was pleased with the novelty of the plan, and Fitch, finding that there was no hope of legislative assistance, conceived the idea that he might sell a sufficient number of copies of his map of the North-Western country, to raise funds to enable him to demonstrate the practicability of the scheme. In this ever-sanguine anticipation, he executed a bond on the 16th of November, to Governor Henry, in the sum of £350, conditioned that if he should sell one thousand copies of his map, at 6s. 8d. each, he would in nine months thereafter, exhibit a steam-boat in the waters of Virginia, or forfeit the penalty. There was also a provision in the instrument that he should produce one thousand copies of the map at Richmond, before the second Monday of November, 1786. One hundred and fifteen subscription papers were given out to the members of the *Assembly*, and it was expected that they would return them full of names, but they paid no attention to the matter, and all that was realized from this plan was twenty subscriptions, obtained by Mr. Dunscomb, of Richmond, to whom forty maps were sent, and from whom eight crowns were received.

When Fitch entered into this agreement, he had not a sufficient number of maps ready, and he determined to postpone his visit to Kentucky, and return to Bucks County to print the required number of copies. At

Fredericktown he again called on Governor Johnson, who urged him to try what he could do in Maryland. There was some conversation here about Rumsey, and Fitch declared that no hint was given that he intended to use steam. Governor Johnson took some subscription papers for the map, and also gave him the following letter to Governor Smallwood, of Maryland:

“FREDERICKTOWN, November 25, 1785.

“SIR:—Mr. John Fitch, of Bucks County, Pennsylvania, called on me in his way to Richmond. He has gone through a variety of scenes in the back country, which has enabled him to collect a knowledge of a great part of the new States, on which and other helps he has made a map, useful and entertaining. His ingenuity in this way strongly recommends him, but his genius is not confined to this alone—he has spent much thought on an improvement of the steam-engine, by which to gain a first power applicable to a variety of uses, amongst others to force vessels forward *in any kind of water*.¹

“If this engine can be simplified, constructed, and made to work at a small expence, there is no doubt but it will be very useful in most great works, amongst them, in ship-building.

“Mr. Fitch wants to raise money to make an experiment on boats. The countenance he has met with in Virginia, he hopes will enable him to do it. He wishes also to make other experiments, and is willing to enter into engagements to apply a large proportion of the sales of his maps to his principal fund. I believe his passion for the improvement will be ample security for his applying the money in that way. All that I have to request of you, sir, is, that you give him an opportunity to converse

¹ Fitch, with good reason, believed this peculiar phrase was used to distinguish his boat from Rumsey's, which could only go *against* the current.

with you, you will soon perceive that he is a man of real genius and modesty. Your countenancing him will follow of course.

"I am, sir,

"Your Excy's

"Most obed. and most H'ble serv't,

"TH. JOHNSON.

"TO HIS EXCELLENCY,

"GOVERNOR SMALLWOOD."

From Fredericktown Fitch repaired to Philadelphia, where the Assembly of Pennsylvania was in session. He there presented a petition for assistance. The committee to whom it was referred, made a flattering verbal report, but there was no definite action. Leaving that application to its fate, he set out for Annapolis, Maryland, where he arrived in the latter part of December. Governor Johnson's letter was delivered, and the matter brought to the attention of the Assembly. Here he ventured to petition for money to procure an engine from Europe, to be expended under the direction of Andrew Ellicott. On the 9th of January, 1786, three days after the memorial was received, the committee reported as follows:—"However desirous it is for liberal and enlightened Legislators to encourage useful arts, yet the state and condition of our finances are such that there can be no advance of public money at present." About the same time he prepared the following advertisement, which is to be found in the *Maryland Gazette* of January 6, 1786.

TO THE ENCOURAGEMENT OF USEFUL ARTS.

The subscriber humbly begs leave to inform the public, that he has proposed a *Machine* for the improvement of NAVIGATION, with other useful ARTS—that it has been honored with the approbation of many men of the first characters for philosophical and mechanical knowledge, in each of the middle States—

that he has laid it before the honorable assembly of Pennsylvania now sitting, whose committee have been pleased to make a very favorable report on the subject. The result has been that a number of Gentlemen of character and influence, have undertaken to promote subscription for his Map of the New part of the United States, in order to enable him to make a full experiment of said *Machine*. He flatters himself, the Subscribers will think the Maps well worth the money, yet he pledges himself to employ one-half the money contributed in constructing and bringing to perfection a machine that promises to be of infinite advantage to the United States.

Dec. 20, 1785.

JOHN FITCH.

The subscriber is of opinion that said machine will be able to make head against the most violent tempest, and at any time ware a vessel off from a lee shore; and that the same force may be applied to free a leaky ship of her water, and that it will produce a constant supply of fresh water, and beside the above mentioned conveniences, he believes it will shorten voyages very considerable: He therefore flatters himself that few gentlemen would think much of contributing towards an experiment so well supported by such numbers of characters, in each of the middle states, as he does not ask their aid without full compensation.

N. B.—The following opinion was given to said Fitch, and subscribed by a number of gentlemen, whose names would do honor to any projection in Philosophy or mechanism:

Upon considering the extent of the principles on which Mr. Fitch proposes to construct his *steam-boat*, and the quantity of motion that may be produced by the elastic force of steam, we are of opinion that if the execution could by any means be made to answer the theory when reduced to practice, it might be beneficial to the public, and it seems to be deserving of a fair experiment, which alone can justify the expectation of success.

Subscriptions taken in by the Printer hereof and Messrs. Spotswood & Clarke, Booksellers and Stationers in Market Street.

Returning from Maryland, he stopped at Dover, in Delaware, where the Legislature of the latter State was in session. He did not present a memorial to that body, but conversed generally with the members, in reference to his plans. Without receiving such encouragement as made him sanguine of obtaining aid from that quarter, he returned to Philadelphia. Anxious

to have the patronage of so influential a man as Dr. Franklin, he again waited upon him and requested his good offices. He asked him for a certificate of the merits of his invention, but the wily philosopher evaded a compliance, whilst he spoke in a very complimentary manner of the plan. Finally, he asked Fitch to come into the next room, where he opened a desk and took from it five or six dollars, which he offered to the projector. The latter was highly offended at this mode of giving him alms. He refused the money, except as a subscription to the boat, which Franklin refused to make. He afterwards wrote, in referring to this interview, "I esteem it one of the most imprudent acts of my life, that I had not treated the insult with the indignity which he merited, and stomped the poltry Ore under my feet." Greatly incensed, he withdrew and directed his course to his home in Bucks County.

CHAPTER XI.

THE STEAM-BOAT COMPANY—THE SKIFF STEAM-BOAT,
1786.

It was impossible for the ardent enthusiast to remain long at home, and in a short time he returned to Philadelphia, in the hope of gaining assistance. Arthur Donaldson, a citizen, had at that time considerable reputation as a person of ingenuity, and was possessed of means. He had been one of the contractors to remove from the Delaware river *chevaux de frise*, placed there during the Revolutionary war, which task was executed to the satisfaction of the public. He had also invented a machine for cleaning out docks, which he called "the Hippopotamus," and had been granted special privileges in the invention, for a term of years, by the Assembly of the State. To this person Fitch applied, in the hope of assistance, and requested him to join him as partner. Donaldson seemed enamoured of the scheme. "It did not appear," says Fitch, "that he had ever thought of it, from his discourse with me," although the plan of the steam-boat had been before the Assembly of the State two months previously. Donaldson did not finally decide upon the subject, but said he would consult with Levi Hollingsworth, before giving an answer. This interview took place on the 4th of February, 1786.

The Assembly of New Jersey was in session at this time, and Fitch repaired to Trenton with the hope of accomplishing something by the assistance of that body. A law to provide for the emission of paper money had just been passed, and as the funded certificates were only worth five shillings in the pound, according to the market value, although interest at par was paid upon them, it was hoped by the friends of the steam-boat that some scheme might be perfected to obtain the assistance of the State. The plan was, to induce the the Legislature to pass a law, appropriating certificates to the value of £1000, for the encouragement of the steam-boat. Stacy Potts, an intelligent citizen of Trenton, lent his aid to the scheme. It was argued, that thereby the State would save the payment of the interest upon the certificates, which would have to be liquidated if they were in the hands of other holders, beside which, there was the chance of a return of the whole sum in specie, or its equivalent, if the steam-boat should succeed. The proposition met with a number of advocates, but it was opposed by Mr. Clerk, a leading member, whose influence was very considerable, and the bill was lost.

Baffled in this endeavor, Fitch returned to Bucks County. Whilst there, he heard from an old woman who had lately been to Philadelphia and nursed an acquaintance of Arthur Donaldson, that there was much conversation in the family about the wonderful invention of a steam-boat which had been made by Mr. Donaldson, and it was said that he intended to apply to the Legislature of Pennsylvania for an exclusive right to the machine. Alarmed at this intelligence, he

hastened to the city, and visited Mr. Donaldson, who acknowledged that he had invented such an improvement, and intended to apply for an exclusive privilege to use it. It appeared that Mr. Donaldson had either hit upon or had been informed of the method of sucking in and voiding water through a tube, suggested by Dr. Franklin to the Philosophical Society, and which was a modification of the idea of Bernouilli. Donaldson declared that he had a right to the sole ownership of any method of propulsion by steam, which differed from the plan of Fitch, which was a paddle-wheel or the endless chain of paddles. Fitch, on the contrary, maintained that the *force and power* which was applied to navigation was the great principle of the invention, and that the *method* by which that power was rendered available, was an immaterial matter.

Determined not to be supplanted in his claim by means which he considered unfair, he immediately presented a petition to the Legislature of Pennsylvania for an exclusive right to the propulsion of vessels "by *fire and steam*." This memorial was presented on the 11th of March. The next day Donaldson's memorial, claiming like privileges, for *his* method of navigation, was also laid before the Assembly.

Leaving the matter thus, Fitch immediately set out to Trenton, where he petitioned the Legislature of New Jersey for a special law, fortifying his application by the following recommendation :

We, the subscribers, have examined the principles of the steam-boat constructed by John Fitch, and are of opinion that it may be the means of improving the navigation of these States

to great advantage, and therefore deserves the protection and encouragement of the Legislature.

ISAAC SMITH,

JOHN COX,

SAMUEL STOCKTON,

WM. C. HOUSTON,

ROBERT PERSON, JUN'R,

STACY POTTS,

JOHN CLUNN,

SAMUEL TUCKER,

RANSOLER WILLIAMS,

JOHN STEVENS, JUN.,

WILLIAM MCBEN,

ABM. HUNT,

THOS. YARD,

CHAS. CLUNN.

This measure was successful. In three days the law was passed. It bears date March 18th, 1786, and secured to John Fitch for fourteen years "The sole and exclusive right of constructing, making, using and employing, or navigating, all and every species or kinds of boats, or water craft, which might be urged or impelled by the force of fire or steam, in all the creeks, rivers, &c., within the territory or jurisdiction of this State."

Returning to Philadelphia, Fitch prepared another petition to the Assembly of Pennsylvania, in which he set forth the circumstances attending his first idea of the invention, and produced the certificates of Rev. Nathaniel Irwin, Abraham Lukens, Seneca Lukens, Daniel Longstreth, James Scout, and John Folwell, of Bucks County, that as early as June, 1785, he had told them, that he had invented a machine for working a boat by steam, and had shown them drafts of it. He stated what his proceedings had been in Virginia, and referred to the bond given to Gov. Patrick Henry. He then offered to prove by Mr. Burrows that he, himself, had first informed Donaldson of the invention of the steam-boat, and described the force and power, and that Donaldson did not at that time say that he had

ever thought of such a means of propulsion. Referring, also, to the law lately passed in New Jersey, he prayed for an investigation into the truth of his allegations. The conflicting claims on the 23d of March were referred to a committee, consisting of Messrs. Clymer, Rittenhouse, Gray, Whitehill, and Irvine, who deferred any action upon them until the next session. The formation of a company, to assist in the necessary experiments by the advancement of money, was now the principal thought of this persevering man. He came to Philadelphia for that purpose on the 17th of April, and in one week had obtained a sufficient number of subscribers. The number of shares was to be forty, of which Fitch was, for his merit as original inventor, and for his subsequent labor, to have one-half. No particular amount was settled upon as the limit to be paid on each share. The subscribers very generally made a payment of twenty dollars per share, and with a sum exceeding three hundred dollars the experiments were commenced. The first great difficulty was the making of a steam-engine, a piece of machinery which the mechanical capability of the country was scarcely able to furnish. John Nancarrow, of Philadelphia, the proprietor of a steel furnace, was employed for the purpose of constructing this important agent for the future working of the experiment. He delayed the impatient projector very much, but in thirty days he produced his drafts, which were such as Fitch could not approve. "It was to work upon the old-fashioned plan of engine [atmospheric, it is presumed], and was to have a weight to raise the piston." Although Nancarrow had considerable reputation, and the steam-boat

projector had none, he stood out stoutly against the design, and succeeded in persuading the company to reject it. Propositions were then made, that the inventor should proceed to New York, to procure the aid of Mr. Hornblower,¹ or Christopher Colles, an ingenious and scientific Irishman, whose learning and skill in machinery, and particularly steam machinery, were widely known and respected throughout the States.²

¹ There were at that time but three steam-engines in operation in America. Two were in New England, and had been imported from England forty years before the Revolutionary war. There was one at the Schuyler copper-mine, Passaic, N. J., which had also been imported from England in parts, which had been put up by Mr. Hornblower. This had been in use for thirty years. Hornblower's success in that work naturally suggested him as a proper person to make the engine for the steam-boat. All those engines were on the atmospheric plan.

² The career of Christopher Colles was in many particulars like that of John Fitch. Both were ingenious beyond the great majority of the people of their time, and both reaped a reward in poverty. Colles deserves mention here, as the first man, it is believed, who *constructed* a steam-engine in America. Born in Ireland, Colles became in youth a protégé of the learned Richard Pococke, bishop of Ossory. By the latter the youth was educated in the languages, mathematics, and physical sciences. After the death of Bishop Ossory, in 1765, Colles left his native land. In March, 1772, he was at Philadelphia, delivering lectures at the hall of the American Philosophical Society, South Second street, "upon Pneumatics, illustrated by a variety of curious and entertaining experiments in an air-pump lately invented by him." Tickets were 5s. for the course. In his announcement he requested patronage for a more important series of lectures, in the following language: "The said Colles, if thereto encouraged, proposes to deliver a course consisting of at least three lectures, upon the practice as well as theory of Hydrostatics and Hydraulics. In these Lectures will be explained

Whilst this matter was under consideration, Fitch became acquainted with Henry Voight, a watchmaker, with whose ingenuity he became very much impressed. After three or four conversations with him, he felt confi-

the gravity, pressure, and motion of fluids, with their action upon different machines, as wind and water mills, various kinds of pumps, the centrifugal and *steam-engines*, and other machines for raising water for different purposes, by different powers, to the greatest advantage, — and as said COLLES has been engaged as principal director in some *inland navigations*, and other works of that nature, and made these branches his particular study, he also intends to explain the principal parts of Hydraulic architecture, as canals, locks, aqueducts, &c. The whole to be elucidated by working models of several engines, & more immediately adapted to point out the defects and improvements of these works, and for the consideration of the artificers concerned therein: beside the apparatus commonly exhibited at Hydrostatical lectures, the following will be shown, viz.: —

The steam-engine,

The Centrifugal engine,

Model of a wind-mill with different kinds of sails,

Model of an overshot and undershot water-mill,

Model of a piece of a canal, with locks, aqueducts, and other appendages belonging to inland navigation.

As the preparation of a sufficient apparatus to exhibit these lectures will be attended with great expense, the said Colles expects on this occasion a particular encouragement of his friends and the public, by taking at least 100 tickets at One Dollar each, and as soon as so many tickets are disposed of, he will prepare the apparatus with all speed."

On the 22d of June he advertised that the lectures would commence in a fortnight, the illustrations being much more extensive than was at first intended.

The consequence of these lectures was, that Colles undertook to build a steam-engine for a distillery in Philadelphia. He succeeded to a certain extent, but the machine was too defective to be useful, and the poor philosopher was forced to seek a

dent that it would be unnecessary to go to New York, for the purpose of obtaining plans for a steam-engine, but that the man to construct it was to be found nearer. Voight took an interest in the scheme, and made such sensible suggestions, that Fitch desired no better as-

public subscription to recompense him for his outlay. In pursuance of this design, he prepared the following petition:

"TO THE AMERICAN PHILOSOPHICAL SOCIETY for Promoting useful Knowledge, held at Philadelphia.

"GENTLEMEN:

"As your society seems particularly calculated to forward all useful undertakings, I beg leave to address myself to you on the following subject:

"I have a long time been of opinion that *fire* might be advantageously employed as a power, to work a variety of mechanical engines, and machines, and previous to my trying any thing new in that way, I have erected one very little differing from the common construction, for raising water for a distillery, & having tried a variety of experiments in order to bring the expence into a narrow compass, do find that the form & dimensions of the *boiler* are not sufficient to furnish a proper quantity of *steam* to make it operate with the necessary velocity, & as the expence has exceeded my expectation and ability, I propose making application to the public by way of subscription, for to reimburse what I have already expended, & to enable me to complete my design. But as all persons are not competent judges of the nature & utility of such contrivances, I request the favour of the Society, that such gentlemen of their body as they shall think convenient, may look at the machine and report their opinion thereof, which will enable the subscription to go on with the greater facility, & much oblige

"Their most h'ble serv't,

"CHRISTOPHER COLLES.

"Philadelphia, 20 August, 1773."

The Society appointed a committee, as requested, who made the following report:

sistant. He offered him a share in the Company, if he would aid him, to which the watch-maker assented. Some years afterward, Fitch recorded his opinions of his coadjutor in this manner :

"August 25th, 1773.

"Agreeably to the direction of the Society, the Committee went to view the Steam-Engine erected by Christopher Colles in this city, which they saw perform several strokes (tho' some of the materials not being sufficiently large and strong, owing to his attempting the execution at a very low expence), it did not continue in motion long: but that a steam-engine may be brought to answer the purpose of raising water, much cheaper than by men or horses, is a fact well known, and we are of opinion that the undertaker is well acquainted with the principles of this particular branch of mechanics, & very capable of carrying it into execution, and therefore worthy of publick encouragement.

DAVID RITTENHOUSE,
OWEN BIDDLE,
RICHARD WELLS."

The Society received the report, with the cautious direction—"a copy of which may be given him by the secretaries, for to encourage the Public to contribute toward the expence of making it, provided *he don't print* the s^d report."

In 1773 Colles was in New York, where he lectured upon lock navigation, steam-engines, &c. He realized but little from this source, and was compelled to eke out means of subsistence by making *band-boxes*. In 1775 he encouraged the warlike American spirit by giving lessons in gunnery. During the war, he manufactured Prussian blue, and other pigments, and made astronomical calculations for almanacs. Before the Revolution was over, he penetrated the wild country about the Mohawk river, examined the obstructions of that stream, and, returning to New York, published, in 1785, his opinions in favor of a system of canal navigation, such as was afterward perfected by DeWitt Clinton. He was among those seeking the contract to convey water into New York in 1797. In 1807 he published another

"Mr. Voight is a Plain Dutchman, who fears no man, and will always speak his sentiments, which has given offence to some of the Members of our Co., and some of them have effected to have a contemptable an opinion of his Philosophic abilities. It is true he is not a man of Letters, nor mathematical Knowledge, but for my own part, I would depend on him more than a Franklin, a Rittenhouse, an Ellicot, a Nancarrow, and Matlack, all combined, as he is a man of superior Mechanical abilities, and Very considerable Natural Philosophy; and as we have many of the first Geniuses in our Co., perhaps nearly equal to those I have mentioned, it is Certain that he has pointed out more defects than them all, and pointed out ways to remedy those defects, when consternation sat silent in every breast for the disaster."

Deferring to the scientific authority of Dr. Franklin, Fitch seems to have determined to build his boat so as to suck in and eject water, and the hull was ordered to be built on that plan, but Voight soon induced him to give up that design.

The first suggestion made by the new colleague was, that a working model of a steam-engine should be

pamphlet, proposing a system of inland canals. This activity for the public good met with but poor encouragement. At times Colles delivered itinerant lectures on electricity, and other sciences. He occasionally made proof glasses to test the specific gravity of spirits. Subsequently receiving a situation as superintendent or janitor of the American Academy of Fine Arts at New York, he increased his gains by exhibitions of the microscope and telescope, "and the size of the head of cabbage he brought home from market [says Dr. J. W. Francis] was diagnostic of the receipts of the previous 24 hours." The same authority says, "He was retiring, religious, modest, and tolerant. Jarvis, the painter, pronounced him a genius, and painted his portrait. In the celebration of 1825, when the waters of Lake Erie were joined to those of the Atlantic, his effigies were borne with honour." He died in 1821, aged eighty-four years.

made. They accordingly commenced a small one, the cylinder being only of one inch diameter, which when completed would not work regularly, the force not being sufficient to overcome the friction. The expense was but trifling, being £3 Pennsylvania currency.¹ It was the first steam-engine of any kind that Fitch had ever seen, and although he had for so long a time indulged an enthusiastic opinion of the wonderfully elastic powers of the vapor, we can easily imagine his joy when he saw his ideas practically although imperfectly demonstrated.

Immediate attention was given to the preparation of a new model, with a three-inch cylinder. At the same time a small skiff was prepared, "in order to try the effect of the propelling apparatus by hand."

The following letter in relation to the hopes entertained of the experiment about this time, was written to Stacy Potts, of Trenton, N. J., who was then a shareholder in the company:

PHILADELPHIA, 13 July, 1786.

SIR — We have not got our engine to work yet, owing to the pumps for the injection water which we have had to make over new, yet see no reason why we should not get it to work in 3 or four days; our machinery is nearly compleat for trying the Boat, which we shall do next week by hand; when we can nearly ascertain what effect it will have when the engine is put to it; I hope in a short time to be able to inform you what success we are like to meet with, when these experiments are made; we shall have about £100 to make the experiment with, but believe if this engine works well it will sell for nearly as much as

¹ The Pennsylvania currency was 7s. 6d. to the dollar. Whenever pounds, shillings or pence are spoken of in this book, they must be understood to be according to Pennsylvania currency.

we have expended, which may put us on our former footing. Sir, I would not send an order for the three dollars, but out of necessity which obliges me to make it, my expectations are daily increasing as to the success of our undertaking, and doubt not but it will be a matter of the first magnitude to the World. With the most Perfect Respect I beg leave to subscribe myself

Your Most devoted

and humble servant

JOHN FITCH.

MR. STACY POTTS.

Voight and Fitch tried experiments on the skiff with "a screw of paddles," the endless chain, and one or two other modes, "which did not answer their expectations." These trials probably took place about the 20th of July, 1786, and they were witnessed by several persons who, expecting a better result, "jeered and scoffed" at Fitch and Voight when they came on shore. Much disheartened, the inventor went off to a tavern, and in his journal he says that he "used considerable West India produce that evening." The next day he felt very much ashamed of himself, and in the evening he went to bed at an early hour, but not to sleep. In narrating his thoughts at this time he says, "About twelve o'clock at night the idea struck me about cranks and paddles for rowing of a boat, and after considering it some time, was sure it would be the best way that a vessel could be propelled by oars." At length he became so uneasy, for fear that he should forget, or lose the idea, that he got up about one o'clock, struck a light, and drew a plan, at which he was delighted. He was so excited that it was altogether impossible for him to sleep. At sunrise he sought the residence of Voight, and showed him the draft. It gave them much en-

couragement, and they at once determined to get a small crank in order to try the invention in the skiff. The working of the oars was perfect, and the success of this method of propulsion gave them fresh spirits. The first plan was improved by a suggestion of Voight. Fitch had proposed that the oars should run through holes in a stationary frame-work, which produced much friction and noise. In place of this method, Voight proposed that the oars should be attached to arms, which obviated the specified objection. The engine now seems to have been completed, and being placed in the boat, it was attached to the new working oars. The result is thus told in a letter to Mr. Potts:

PHILADELPHIA, 28 July, 1786.

MY WORTHY FRIEND — This may inform you that I have completed my experiments yesterday and find that they exceed my most sanguine expectations, we let out 7 knot of Log line and had not more than half of the Purchase that we shall have on a Large Boat; we have now tried every grot and reduced it as certain as any thing can be that we shall not come short of 10 miles per Hour, if not 12 or 14 — I will say fourteen in Theory, and Ten in practise — the company is to meet tomorrow Evening, and I doubt not they will Pursue it on a larger scale and make a Boat of 20 Tons Burthen, and a 12 Inch Cylinder.

I have lately invented an easy, simple and practicable way of rowing a Boat, applicable for an Engine, where I am persuaded that the strength of two men will do the work of three, at any rate with one man in our Boat we fear no one man going before us, notwithstanding our oars are not properly adjusted. I shall do myself the pleasure of letting you hear from time to time how we proceed, and expect there will be Greater advances of Money called for as there is upward of £60 of the money expended.

I beg leave to subscribe myself Your Ever Faithful Friend
and Humble Servt

JOHN FITCH.

MR. STACY POTTS.

Speaking of his success, he says of the model, "It fully convinced me that the steam-engine might be worked *both ways* as well as one." His letter of congratulation to Mr. Potts was followed by a reply from the latter, which showed that already one patron was lost. It was in these words :

TRENTON, Sept. 2d, 1786.

FRIEND FITCH — It affords me great satisfaction to find that the invention of the Steam-Boat is likely, now, to be applied to useful and valuable purposes, to the benefit and advantage of mankind in general, and the emolument and aggrandizement of the Proprietors in particular; and I shall reflect with pleasure on the encouragement I have given, and the ardent wishes I have entertained for its success: But as it has now become a matter of property, is likely to be lucrative and interesting to the sharers, and may soon be made very extensive on the different waters of the united States; in order to avoid the difficulties and embarrassments of a scheme of such Magnitude, and support a harmony and friendship among the members who are interested, I have thought it absolutely necessary that the parties should live so contiguous, as to enjoy without difficulty the advantage of frequent consultation, therefore conclude it best for me to decline any further concern in the scheme, which is now capable of carrying itself on, with advantage to such company of proprietors as may unite for that purpose in and about Philadelphia; yet with a hope, that if the company should hereafter conclude to divide the care of the different departments of the plan, when extended to its great expanded usefulness, some part thereof may perhaps come with propriety within the compass of my convenient attention, when I should be glad to be considered as one of its friends and promoters.

from thy friend

STACY POTTS.

The model had done its work; It had moved the small boat on the Delaware, and as the funds of the company were getting low, the idea of disposing of the

engine was acted upon, in a manner which the following letter will show :

PHILAD., 4 Septm., 1786.

SIR — In a conference that I had the honour of with your Excellency, I heard you mention, that the Philosophical Society ought to be furnished with a Model of a Steam Engine, and having compleated one upon a small scale, would be exceedingly happy should it meet your Patronage so far as to recommend the purchase of it, to the s^d learned Society, of whome Honoured Sir, you are President. I am now morally sure from *Experience*, that a vessel may be propelled to great advantage thro the Water, by means of a steam Engine, and have undertaken the work upon a large scale, but am apprehensive that the money raised will be insufficient for the purpose. This Engine which we would wish to dispose of, cost us about One hundred Dollars, but notwithstanding, whatever may be offered by the Society, will be thankfully accepted of. The principles upon which it operates are good, and will in every respect communicate a satisfactory Knowledge of a steam Engine, and in some measure of its power. Yet it has some defects, which are chiefly the following, viz. — 1st the stove and Boiler, being small, the steam is not sufficient to move the Piston, more than about twenty strokes per minut. 2nd The Piston being worked both ways by steam, its rod soon becomes heated, that it cannot move home one way, by a space of from half an inch to Two inches, by its then creating steam. 3^d The Pumps which alternately inject water into the Cylinder causes too small friction: yet notwithstanding these Difficulties the Piston moves with considerable Velocity, when unloded, and is supplied with steam. I humbly beg leave to submit this to your excellency and beg permission to subscribe myself

Your Excellencys ever Faithful

and most Devoted Humble Servant

JOHN FITCH.

HIS Excellency, DR. FRANKLIN.

This application was not favorably received. No action was taken by the society in reference to the purchase of the model.

CHAPTER XII.

ENCOURAGEMENT BY THE STATES—LARGE STEAM-BOAT
COMMENCED.

THE members of the Company were very much pleased with the result of the experiment made with the skiff steam-boat, and they were now satisfied that the invention might be made useful. In this belief, it was resolved by them, in the month of August, to construct a new and larger boat, with a twelve-inch cylinder. It was expected that the performances of this vessel would forever silence those who cavilled at the scheme. With an energy of spirit which was illy justified by the prospect before them, Fitch and Voight commenced the necessary work to forward the resolution. Voight was made the assignee of two additional shares, for his past assistance and expected aid. But there was a trouble which impended, that was more serious than they anticipated. The sum of money first collected had all been expended in the experiments which were made; and if a larger boat and engine were to be built, fresh contributions were necessary. The Company was composed of three classes of individuals: some had subscribed to forward the experiment, with no hope of after benefit; others had embarked in the business merely as a speculation, and were impatient for a lucrative return for the amount invested; whilst a third class had associated themselves

in the affair out of good-will to Fitch, and to encourage him. Funds were now needed, but there was no cheerful contribution made. Meetings of the society were called, which but few attended, and at which, in consequence, it was not deemed prudent to pass resolutions calling for new instalments. "If levies had been then made," said Fitch, "they would have esteemed the money as taken from them by me, and would much prefer a common beggar to come to their doors than myself. All the hardships that I had ever experienced were nothing to the distress of feeling in raising money from my best friends. Could money have been extracted from my limbs, amputation would have often taken place, provided the disjointed part could have been readily joined, rather than to make the demands which I have. I need not add to this the insults of the populace; for none were felt by me, excepting only those designed for my patrons, and those that were offered by them."

He could not give up the work. He felt himself bound in honor to go on. He was baffled in obtaining money from all but a generous few. He determined to try what success would attend an application for a loan to the Pennsylvania Legislature. In that design, he prepared the following petition:

GENTLEMEN:—I have no doubt in my own mind but that every person who is acquainted with the principles of my scheme feels a conviction that it ought to be encouraged. From whome, then, ought we to expect encouragement? Undoubtedly, from those who are to be benefited. And can Individuals be so benefited by it as the Public? Individuals cannot be benefited by it unless the public pleases to make it beneficial to them. And it is in the Confidence that Individuals have placed in the

Legislature for giving encouragement to it, that it is brought so far as it is; and it is in the Confidence that I have placed in the Legislature that I have resigned my all, and been at such a vast expence, and labour, to promote an art that may be advantageous to my Country. I have ever demeaned myself as a faithful, good Citizen of the State, and therefor have some reason to expect every encouragement due to such a character. Neither is there one of the Gentlemen who promotes it, but are and have been useful members of the Community. I doubt not but every one of the members of the Committee feels an inclination of rewarding us according to the utility of the invention, and do not know of any mode that can be adopted to reward a person for an improvement so equitable as an exclusive Privalege for a certain number of years.

But, Gentlemen, I have made you acquainted with the imberassments and difficulties which I labour under, and that I do not know of any other way of compleating the Work but by taking a subscription from door to door. Now could this Committee see fit to reccommend it to the House to lend me £150, I should be willing to pos pone an exclusive right until such times as I returned the money into the Treasury again. I do not wish to handle a shilling of the money myself; but let it be given to the Treasury of our Co., and disposed of agreeable to the discretion of the Committee of sd Co.; and since the scheme is approved of by all men of science who have examined it, and there never has been one, even of my most bitter enemies, that has ever attempted to point out how it will miscarry—Then I query whether the assembly of Pennsylvania could not with great propriety take notice of the scheme, so as to give it proper encouragement? On the other hand, provided they should not, what could be said of us in other Countries? Would they not say that there was a poor fellow in America that proposed a plan that would inrich America at least 3 times as much as all that country N. W. of the Ohio, as it would make that country four times as valuable, beside the inconceivable advantages to the settled portion of the Continent—and this he demonstrated as clear as one of Euclid's Problems; and not only that, but asserted it in miniture, so as it could not admit of a doubt—and

CHAPTER XI.

THE STEAM-BOAT COMPANY—THE SKIFF STEAM-BOAT,
1786.

It was impossible for the ardent enthusiast to remain long at home, and in a short time he returned to Philadelphia, in the hope of gaining assistance. Arthur Donaldson, a citizen, had at that time considerable reputation as a person of ingenuity, and was possessed of means. He had been one of the contractors to remove from the Delaware river *chevaux de frise*, placed there during the Revolutionary war, which task was executed to the satisfaction of the public. He had also invented a machine for cleaning out docks, which he called "the Hippopotamus," and had been granted special privileges in the invention, for a term of years, by the Assembly of the State. To this person Fitch applied, in the hope of assistance, and requested him to join him as partner. Donaldson seemed enamoured of the scheme. "It did not appear," says Fitch, "that he had ever thought of it, from his discourse with me," although the plan of the steam-boat had been before the Assembly of the State two months previously. Donaldson did not finally decide upon the subject, but said he would consult with Levi Hollingsworth, before giving an answer. This interview took place on the 4th of February, 1786.

The Assembly of New Jersey was in session at this time, and Fitch repaired to Trenton with the hope of accomplishing something by the assistance of that body. A law to provide for the emission of paper money had just been passed, and as the funded certificates were only worth five shillings in the pound, according to the market value, although interest at par was paid upon them, it was hoped by the friends of the steam-boat that some scheme might be perfected to obtain the assistance of the State. The plan was, to induce the the Legislature to pass a law, appropriating certificates to the value of £1000, for the encouragement of the steam-boat. Stacy Potts, an intelligent citizen of Trenton, lent his aid to the scheme. It was argued, that thereby the State would save the payment of the interest upon the certificates, which would have to be liquidated if they were in the hands of other holders, beside which, there was the chance of a return of the whole sum in specie, or its equivalent, if the steam-boat should succeed. The proposition met with a number of advocates, but it was opposed by Mr. Clerk, a leading member, whose influence was very considerable, and the bill was lost.

Baffled in this endeavor, Fitch returned to Bucks County. Whilst there, he heard from an old woman who had lately been to Philadelphia and nursed an acquaintance of Arthur Donaldson, that there was much conversation in the family about the wonderful invention of a steam-boat which had been made by Mr. Donaldson, and it was said that he intended to apply to the Legislature of Pennsylvania for an exclusive right to the machine. Alarmed at this intelligence, he

hastened to the city, and visited Mr. Donaldson, who acknowledged that he had invented such an improvement, and intended to apply for an exclusive privilege to use it. It appeared that Mr. Donaldson had either hit upon or had been informed of the method of sucking in and voiding water through a tube, suggested by Dr. Franklin to the Philosophical Society, and which was a modification of the idea of Bernouilli. Donaldson declared that he had a right to the sole ownership of any method of propulsion by steam, which differed from the plan of Fitch, which was a paddle-wheel or the endless chain of paddles. Fitch, on the contrary, maintained that the *force and power* which was applied to navigation was the great principle of the invention, and that the *method* by which that power was rendered available, was an immaterial matter.

Determined not to be supplanted in his claim by means which he considered unfair, he immediately presented a petition to the Legislature of Pennsylvania for an exclusive right to the propulsion of vessels "by *fire and steam*." This memorial was presented on the 11th of March. The next day Donaldson's memorial, claiming like privileges, for *his* method of navigation, was also laid before the Assembly.

Leaving the matter thus, Fitch immediately set out to Trenton, where he petitioned the Legislature of New Jersey for a special law, fortifying his application by the following recommendation :

We, the subscribers, have examined the principles of the steam-boat constructed by John Fitch, and are of opinion that it may be the means of improving the navigation of these States

to great advantage, and therefore deserves the protection and encouragement of the Legislature.

ISAAC SMITH,	SAMUEL TUCKER,
JOHN COX,	RANSOLER WILLIAMS,
SAMUEL STOCKTON,	JOHN STEVENS, JUN.,
WM. C. HOUSTON,	WILLIAM MCBEN,
ROBERT PERSON, JUN'R,	ABM. HUNT,
STACY POTTS,	THOS. YARD,
JOHN CLUNN,	CHAS. CLUNN.

This measure was successful. In three days the law was passed. It bears date March 18th, 1786, and secured to John Fitch for fourteen years "The sole and exclusive right of constructing, making, using and employing, or navigating, all and every species or kinds of boats, or water craft, which might be urged or impelled by the force of fire or steam, in all the creeks, rivers, &c., within the territory or jurisdiction of this State."

Returning to Philadelphia, Fitch prepared another petition to the Assembly of Pennsylvania, in which he set forth the circumstances attending his first idea of the invention, and produced the certificates of Rev. Nathaniel Irwin, Abraham Lukens, Seneca Lukens, Daniel Longstreth, James Scout, and John Folwell, of Bucks County, that as early as June, 1785, he had told them, that he had invented a machine for working a boat by steam, and had shown them drafts of it. He stated what his proceedings had been in Virginia, and referred to the bond given to Gov. Patrick Henry. He then offered to prove by Mr. Burrows that he, himself, had first informed Donaldson of the invention of the steam-boat, and described the force and power, and that Donaldson did not at that time say that he had

ever thought of such a means of propulsion. Referring, also, to the law lately passed in New Jersey, he prayed for an investigation into the truth of his allegations. The conflicting claims on the 23d of March were referred to a committee, consisting of Messrs. Clymer, Rittenhouse, Gray, Whitehill, and Irvine, who deferred any action upon them until the next session. The formation of a company, to assist in the necessary experiments by the advancement of money, was now the principal thought of this persevering man. He came to Philadelphia for that purpose on the 17th of April, and in one week had obtained a sufficient number of subscribers. The number of shares was to be forty, of which Fitch was, for his merit as original inventor, and for his subsequent labor, to have one-half. No particular amount was settled upon as the limit to be paid on each share. The subscribers very generally made a payment of twenty dollars per share, and with a sum exceeding three hundred dollars the experiments were commenced. The first great difficulty was the making of a steam-engine, a piece of machinery which the mechanical capability of the country was scarcely able to furnish. John Nancarrow, of Philadelphia, the proprietor of a steel furnace, was employed for the purpose of constructing this important agent for the future working of the experiment. He delayed the impatient projector very much, but in thirty days he produced his drafts, which were such as Fitch could not approve. "It was to work upon the old-fashioned plan of engine [atmospheric, it is presumed], and was to have a weight to raise the piston." Although Nancarrow had considerable reputation, and the steam-boat

projector had none, he stood out stoutly against the design, and succeeded in persuading the company to reject it. Propositions were then made, that the inventor should proceed to New York, to procure the aid of Mr. Hornblower,¹ or Christopher Colles, an ingenious and scientific Irishman, whose learning and skill in machinery, and particularly steam machinery, were widely known and respected throughout the States.²

¹ There were at that time but three steam-engines in operation in America. Two were in New England, and had been imported from England forty years before the Revolutionary war. There was one at the Schuyler copper-mine, Passaic, N. J., which had also been imported from England in parts, which had been put up by Mr. Hornblower. This had been in use for thirty years. Hornblower's success in that work naturally suggested him as a proper person to make the engine for the steam-boat. All those engines were on the atmospheric plan.

² The career of Christopher Colles was in many particulars like that of John Fitch. Both were ingenious beyond the great majority of the people of their time, and both reaped a reward in poverty. Colles deserves mention here, as the first man, it is believed, who *constructed* a steam-engine in America. Born in Ireland, Colles became in youth a protégé of the learned Richard Pococke, bishop of Ossory. By the latter the youth was educated in the languages, mathematics, and physical sciences. After the death of Bishop Ossory, in 1765, Colles left his native land. In March, 1772, he was at Philadelphia, delivering lectures at the hall of the American Philosophical Society, South Second street, "upon Pneumatics, illustrated by a variety of curious and entertaining experiments in an air-pump lately invented by him." Tickets were 5s. for the course. In his announcement he requested patronage for a more important series of lectures, in the following language: "The said Colles, if thereto encouraged, proposes to deliver a course consisting of at least three lectures, upon the practice as well as theory of Hydrostatics and Hydraulics. . In these Lectures will be explained

Whilst this matter was under consideration, Fitch became acquainted with Henry Voight, a watchmaker, with whose ingenuity he became very much impressed. After three or four conversations with him, he felt confi-

the gravity, pressure, and motion of fluids, with their action upon different machines, as wind and water mills, various kinds of pumps, the centrifugal and *steam-engines*, and other machines for raising water for different purposes, by different powers, to the greatest advantage, — and as said COLLES has been engaged as principal director in some *inland navigations*, and other works of that nature, and made these branches his particular study, he also intends to explain the principal parts of Hydraulic architecture, as canals, locks, aqueducts, &c. The whole to be elucidated by working models of several engines, & more immediately adapted to point out the defects and improvements of these works, and for the consideration of the artificers concerned therein: beside the apparatus commonly exhibited at Hydrostatical lectures, the following will be shown, viz.: —

The steam-engine,

The Centrifugal engine,

Model of a wind-mill with different kinds of sails,

Model of an overshot and undershot water-mill,

Model of a piece of a canal, with locks, aqueducts, and other appendages belonging to inland navigation.

As the preparation of a sufficient apparatus to exhibit these lectures will be attended with great expense, the said Colles expects on this occasion a particular encouragement of his friends and the public, by taking at least 100 tickets at One Dollar each, and as soon as so many tickets are disposed of, he will prepare the apparatus with all speed."

On the 22d of June he advertised that the lectures would commence in a fortnight, the illustrations being much more extensive than was at first intended.

The consequence of these lectures was, that Colles undertook to build a steam-engine for a distillery in Philadelphia. He succeeded to a certain extent, but the machine was too defective to be useful, and the poor philosopher was forced to seek a

dent that it would be unnecessary to go to New York, for the purpose of obtaining plans for a steam-engine, but that the man to construct it was to be found nearer. Voight took an interest in the scheme, and made such sensible suggestions, that Fitch desired no better as-

public subscription to recompense him for his outlay. In pursuance of this design, he prepared the following petition:

"TO THE AMERICAN PHILOSOPHICAL SOCIETY for Promoting useful Knowledge, held at Philadelphia.

"GENTLEMEN:

"As your society seems particularly calculated to forward all useful undertakings, I beg leave to address myself to you on the following subject:

"I have a long time been of opinion that *fire* might be advantageously employed as a power, to work a variety of mechanical engines, and machines, and previous to my trying any thing new in that way, I have erected one very little differing from the common construction, for raising water for a distillery, & having tried a variety of experiments in order to bring the expence into a narrow compass, do find that the form & dimensions of the *boiler* are not sufficient to furnish a proper quantity of *steam* to make it operate with the necessary velocity, & as the expence has exceeded my expectation and ability, I propose making application to the public by way of subscription, for to reimburse what I have already expended, & to enable me to complete my design. But as all persons are not competent judges of the nature & utility of such contrivances, I request the favour of the Society, that such gentlemen of their body as they shall think convenient, may look at the machine and report their opinion thereof, which will enable the subscription to go on with the greater facility, & much oblige

"Their most h'ble serv't,

"CHRISTOPHER COLLES.

"*Philadelphia*, 20 August, 1773."

The Society appointed a committee, as requested, who made the following report:

sistant. He offered him a share in the Company, if he would aid him, to which the watch-maker assented. Some years afterward, Fitch recorded his opinions of his coadjutor in this manner :

"August 25th, 1773.

"Agreeably to the direction of the Society, the Committee went to view the Steam-Engine erected by Christopher Colles in this city, which they saw perform several strokes (tho' some of the materials not being sufficiently large and strong, owing to his attempting the execution at a very low expence), it did not continue in motion long: but that a steam-engine may be brought to answer the purpose of raising water, much cheaper than by men or horses, is a fact well known, and we are of opinion that the undertaker is well acquainted with the principles of this particular branch of mechanics, & very capable of carrying it into execution, and therefore worthy of publick encouragement.

DAVID RITTENHOUSE,
OWEN BIDDLE,
RICHARD WELLS."

The Society received the report, with the cautious direction—"a copy of which may be given him by the secretaries, for to encourage the Public to contribute toward the expence of making it, provided *he don't print* the s^d report."

In 1773 Colles was in New York, where he lectured upon lock navigation, steam-engines, &c. He realized but little from this source, and was compelled to eke out means of subsistence by making *band-boxes*. In 1775 he encouraged the warlike American spirit by giving lessons in gunnery. During the war, he manufactured Prussian blue, and other pigments, and made astronomical calculations for almanacs. Before the Revolution was over, he penetrated the wild country about the Mohawk river, examined the obstructions of that stream, and, returning to New York, published, in 1785, his opinions in favor of a system of canal navigation, such as was afterward perfected by DeWitt Clinton. He was among those seeking the contract to convey water into New York in 1797. In 1807 he published another

"Mr. Voight is a Plain Dutchman, who fears no man, and will always speak his sentiments, which has given offence to some of the Members of our Co., and some of them have effected to have a contemptible an opinion of his Philosophic abilities. It is true he is not a man of Letters, nor mathematical Knowledge, but for my own part, I would depend on him more than a Franklin, a Rittenhouse, an Ellicot, a Nancarrow, and Matlack, all combined, as he is a man of superior Mechanical abilities, and Very considerable Natural Philosophy; and as we have many of the first Geniuses in our Co., perhaps nearly equal to those I have mentioned, it is Certain that he has pointed out more defects than them all, and pointed out ways to remedy those defects, when consternation sat silent in every breast for the disaster."

Deferring to the scientific authority of Dr. Franklin, Fitch seems to have determined to build his boat so as to suck in and eject water, and the hull was ordered to be built on that plan, but Voight soon induced him to give up that design.

The first suggestion made by the new colleague was, that a working model of a steam-engine should be

pamphlet, proposing a system of inland canals. This activity for the public good met with but poor encouragement. At times Colles delivered itinerant lectures on electricity, and other sciences. He occasionally made proof glasses to test the specific gravity of spirits. Subsequently receiving a situation as superintendent or janitor of the American Academy of Fine Arts at New York, he increased his gains by exhibitions of the microscope and telescope, "and the size of the head of cabbage he brought home from market [says Dr. J. W. Francis] was diagnostic of the receipts of the previous 24 hours." The same authority says, "He was retiring, religious, modest, and tolerant. Jarvis, the painter, pronounced him a genius, and painted his portrait. In the celebration of 1825, when the waters of Lake Erie were joined to those of the Atlantic, his effigies were borne with honour." He died in 1821, aged eighty-four years.

made. They accordingly commenced a small one, the cylinder being only of one inch diameter, which when completed would not work regularly, the force not being sufficient to overcome the friction. The expense was but trifling, being £3 Pennsylvania currency.¹ It was the first steam-engine of any kind that Fitch had ever seen, and although he had for so long a time indulged an enthusiastic opinion of the wonderfully elastic powers of the vapor, we can easily imagine his joy when he saw his ideas practically although imperfectly demonstrated.

Immediate attention was given to the preparation of a new model, with a three-inch cylinder. At the same time a small skiff was prepared, "in order to try the effect of the propelling apparatus by hand."

The following letter in relation to the hopes entertained of the experiment about this time, was written to Stacy Potts, of Trenton, N. J., who was then a shareholder in the company:

PHILADELPHIA, 13 July, 1786.

SIR — We have not got our engine to work yet, owing to the pumps for the injection water which we have had to make over new, yet see no reason why we should not get it to work in 3 or four days; our machinery is nearly compleat for trying the Boat, which we shall do next week by hand; when we can nearly ascertain what effect it will have when the engine is put to it; I hope in a short time to be able to inform you what success we are like to meet with, when these experiments are made; we shall have about £100 to make the experiment with, but believe if this engine works well it will sell for nearly as much as

¹ The Pennsylvania currency was 7s. 6d. to the dollar. Whenever pounds, shillings or pence are spoken of in this book, they must be understood to be according to Pennsylvania currency.

we have expended, which may put us on our former footing. Sir, I would not sent an order for the three dollars, but out of necessity which obliges me to make it, my expectations are daly increasing as to the success of our undertaking, and dout not but it will be a matter of the first magnitude to the World. With the most Perfect Respect I beg leave to subscribe myself

Your Most devoted

and humble servant

JOHN FITCH.

MR. STACY POTTS.

Voight and Fitch tried experiments on the skiff with "a screw of paddles," the endless chain, and one or two other modes, "which did not answer their expectations." These trials probably took place about the 20th of July, 1786, and they were witnessed by several persons who, expecting a better result, "jeered and scoffed" at Fitch and Voight when they came on shore. Much disheartened, the inventor went off to a tavern, and in his journal he says that he "used considerable West India produce that evening." The next day he felt very much ashamed of himself, and in the evening he went to bed at an early hour, but not to sleep. In narrating his thoughts at this time he says, "About twelve o'clock at night the idea struck me about cranks and paddles for rowing of a boat, and after considering it some time, was sure it would be the best way that a vessel could be propelled by oars." At length he became so uneasy, for fear that he should forget, or lose the idea, that he got up about one o'clock, struck a light, and drew a plan, at which he was delighted. He was so excited that it was altogether impossible for him to sleep. At sunrise he sought the residence of Voight, and showed him the draft. It gave them much en-

couragement, and they at once determined to get a small crank in order to try the invention in the skiff. The working of the oars was perfect, and the success of this method of propulsion gave them fresh spirits. The first plan was improved by a suggestion of Voight. Fitch had proposed that the oars should run through holes in a stationary frame-work, which produced much friction and noise. In place of this method, Voight proposed that the oars should be attached to arms, which obviated the specified objection. The engine now seems to have been completed, and being placed in the boat, it was attached to the new working oars. The result is thus told in a letter to Mr. Potts:

PHILADELPHIA, 28 July, 1786.

MY WORTHY FRIEND — This may inform you that I have completed my experiments yesterday and find that they exceed my most sanguine expectations, we let out 7 knot of Log line and had not more than half of the Purchase that we shall have on a Large Boat; we have now tried every grot and reduced it as certain as any thing can be that we shall not come short of 10 miles per Hour, if not 12 or 14 — I will say fourteen in Theory, and Ten in practise — the company is to meet tomorrow Evening, and I doubt not they will Pursue it on a larger scale and make a Boat of 20 Tons Burthen, and a 12 Inch Cylinder.

I have lately invented an easy, simple and practicable way of rowing a Boat, applicable for an Engine, where I am persuaded that the strength of two men will do the work of three, at any rate with one man in our Boat we fear no one man going before us, notwithstanding our oars are not properly adjusted. I shall do myself the pleasure of letting you hear from time to time how we proceed, and expect there will be Greater advances of Money called for as there is upward of £60 of the money expended.

I beg leave to subscribe myself Your Ever Faithful Friend
and Humble Servt

JOHN FITCH.

MR. STACY POTTS.

Speaking of his success, he says of the model, "It fully convinced me that the steam-engine might be worked *both ways* as well as one." His letter of congratulation to Mr. Potts was followed by a reply from the latter, which showed that already one patron was lost. It was in these words :

TRENTON, Sept. 2d, 1786.

FRIEND FITCH — It affords me great satisfaction to find that the invention of the Steam-Boat is likely, now, to be applied to useful and valuable purposes, to the benefit and advantage of mankind in general, and the emolument and aggrandizement of the Proprietors in particular; and I shall reflect with pleasure on the encouragement I have given, and the ardent wishes I have entertained for its success: But as it has now become a matter of property, is likely to be lucrative and interesting to the sharers, and may soon be made very extensive on the different waters of the united States; in order to avoid the difficulties and embarrassments of a scheme of such Magnitude, and support a harmony and friendship among the members who are interested, I have thought it absolutely necessary that the parties should live so contiguous, as to enjoy without difficulty the advantage of frequent consultation, therefore conclude it best for me to decline any further concern in the scheme, which is now capable of carrying itself on, with advantage to such company of proprietors as may unite for that purpose in and about Philadelphia; yet with a hope, that if the company should hereafter conclude to divide the care of the different departments of the plan, when extended to its great expanded usefulness, some part thereof may perhaps come with propriety within the compass of my convenient attention, when I should be glad to be considered as one of its friends and promoters.

from thy friend

STACY POTTS.

The model had done its work; It had moved the small boat on the Delaware, and as the funds of the company were getting low, the idea of disposing of the

engine was acted upon, in a manner which the following letter will show :

PHILAD., 4 Sept., 1786.

SIR — In a conference that I had the honour of with your Excellency, I heard you mention, that the Philosophical Society ought to be furnished with a Model of a Steam Engine, and having compleated one upon a small scale, would be exceedingly happy should it meet your Patronage so far as to recommend the purchase of it, to the s^d learned Society, of whome Honoured Sir, you are President. I am now morally sure from *Experience*, that a vessel may be propelled to great advantage thro the Water, by means of a steam Engine, and have undertaken the work upon a large scale, but am apprehensive that the money raised will be insufficient for the purpose. This Engine which we would wish to dispose of, cost us about One hundred Dollars, but notwithstanding, whatever may be offered by the Society, will be thankfully accepted of. The principles upon which it operates are good, and will in every respect communicate a satisfactory Knowledge of a steam Engine, and in some measure of its power. Yet it has some defects, which are chiefly the following, viz. — 1st the stove and Boiler, being small, the steam is not sufficient to move the Piston, more than about twenty strokes per minut. 2nd The Piston being worked both ways by steam, its rod soon becomes heated, that it cannot move home one way, by a space of from half an inch to Two inches, by its then creating steam. 3^d The Pumps which alternately inject water into the Cylinder causes too small friction: yet notwithstanding these Difficulties the Piston moves with considerable Velocity, when unloded, and is supplied with steam. I humbly beg leave to submit this to your excellency and beg permission to subscribe myself

Your Excellencys ever Faithful

and most Devoted Humble Servant

JOHN FITCH.

His Excellency, DR. FRANKLIN.

This application was not favorably received. No action was taken by the society in reference to the purchase of the model.

CHAPTER XII.

ENCOURAGEMENT BY THE STATES—LARGE STEAM-BOAT
COMMENCED.

THE members of the Company were very much pleased with the result of the experiment made with the skiff steam-boat, and they were now satisfied that the invention might be made useful. In this belief, it was resolved by them, in the month of August, to construct a new and larger boat, with a twelve-inch cylinder. It was expected that the performances of this vessel would forever silence those who cavilled at the scheme. With an energy of spirit which was illy justified by the prospect before them, Fitch and Voight commenced the necessary work to forward the resolution. Voight was made the assignee of two additional shares, for his past assistance and expected aid. But there was a trouble which impended, that was more serious than they anticipated. The sum of money first collected had all been expended in the experiments which were made; and if a larger boat and engine were to be built, fresh contributions were necessary. The Company was composed of three classes of individuals: some had subscribed to forward the experiment, with no hope of after benefit; others had embarked in the business merely as a speculation, and were impatient for a lucrative return for the amount invested; whilst a third class had associated themselves

in the affair out of good-will to Fitch, and to encourage him. Funds were now needed, but there was no cheerful contribution made. Meetings of the society were called, which but few attended, and at which, in consequence, it was not deemed prudent to pass resolutions calling for new instalments. "If levies had been then made," said Fitch, "they would have esteemed the money as taken from them by me, and would much prefer a common beggar to come to their doors than myself. All the hardships that I had ever experienced were nothing to the distress of feeling in raising money from my best friends. Could money have been extracted from my limbs, amputation would have often taken place, provided the disjointed part could have been readily joined, rather than to make the demands which I have. I need not add to this the insults of the populace; for none were felt by me, excepting only those designed for my patrons, and those that were offered by them."

He could not give up the work. He felt himself bound in honor to go on. He was baffled in obtaining money from all but a generous few. He determined to try what success would attend an application for a loan to the Pennsylvania Legislature. In that design, he prepared the following petition:

GENTLEMEN:—I have no doubt in my own mind but that every person who is acquainted with the principles of my scheme feels a conviction that it ought to be encouraged. From whom, then, ought we to expect encouragement? Undoubtedly, from those who are to be benefited. And can Individuals be so benefited by it as the Public? Individuals cannot be benefited by it unless the public pleases to make it beneficial to them. **And it is in the Confidence that Individuals have placed in the**

Legislature for giving encouragement to it, that it is brought so far as it is; and it is in the Confidence that I have placed in the Legislature that I have resigned my all, and been at such a vast expence, and labour, to promote an art that may be advantageous to my Country. I have ever demeaned myself as a faithful, good Citizen of the State, and therefor have some reason to expect every encouragement due to such a character. Neither is there one of the Gentlemen who promotes it, but are and have been useful members of the Community. I doubt not but every one of the members of the Committee feels an inclination of rewarding us according to the utility of the invention, and do not know of any mode that can be adopted to reward a person for an improvement so equitable as an exclusive Privalege for a certain number of years.

But, Gentlemen, I have made you acquainted with the imberassments and difficulties which I labour under, and that I do not know of any other way of compleating the Work but by taking a subscription from door to door. Now could this Committee see fit to reccommend it to the House to lend me £150, I should be willing to pos pone an exclusive right until such times as I returned the money into the Treasury again. I do not wish to handle a shilling of the money myself; but let it be given to the Treasury of our Co., and disposed of agreeable to the discretion of the Committee of sd Co.; and since the scheme is approved of by all men of science who have examined it, and there never has been one, even of my most bitter enemies, that has ever attempted to point out how it will miscarry—Then I query whether the assembly of Pennsylvania could not with great propriety take notice of the scheme, so as to give it proper encouragement? On the other hand, provided they should not, what could be said of us in other Countries? Would they not say that there was a poor fellow in America that proposed a plan that would inrich America at least 3 times as much as all that country N. W. of the Ohio, as it would make that country four times as valuable, beside the inconceivable advantages to the settled portion of the Continent—and this he demonstrated as clear as one of Euclid's Problems; and not only that, but asser-tained it in miniture, so as it could not admit of a doubt—and

notwithstanding he applied to Congress, and to each of the Middle states, they would not give him a single souse to execute his plan, because that they thought that he could do it by beging, and save them the expence. May heaven forbid that such a stigma should be placed to the ac^t of the Country that gave me birth!

Permit me, Gentlemen, to inform you the prospects that we have before us. Mr. Voigt and myselfe are sure that we can build an Engine; nay, we are vain enough to believe that we can make one as good as they can in Europe.

We know that an equal force applied to the turning an axil tree will row a boat faster than the same force applied to an Oar. These, Gentlemen, are indisputable facts, and have been ascertained in miniture. Could I by any means raise sufficient money, I would not ask it from the Legislature; but there is such a strange infatuation in mankind, that it seems they would rather lay out their money in Beloons and Fireworks, and be a pest to Society, than to lay it out in something that would be of use to themselves and Country; for even if we should miscary in our Boat, we make something woth our money, and introduce a most useful art into our nation, and bring one of the first powers in nature into the service of our Empire; without sending our money too, or being beholden to foreign nations. Then I beg leave to query, Which will be most for the hon^r of the State—to incourage or discourage the undertaking? If it succeeds, and our Legislature does nothing but discourage or take no notice of it, what will or can be said to their discredit?—especially when it is so clearly demonstrated, and my imbrassments made known to them. Pardon me for mentioning it, but, on the other hand, provided the House should lend me £150, what reflections or discredit could the House suffer by it? Could any one say that the House threw away £150, on a whim of a mad projector? No! because it is supported in this opinion of upward of forty principal Characters in the middle States. Can they say that the money is lost? No! because it is laid out in something worth itself, and on that which will be of public utility. But to make the worst of every thing, the State gets two Engineers by it, for by this we make ourselves Masters of that art, and in all probability, we may save many hundred

pounds, from going to Europe for that Very article. But if we had but one chance in a thousand of succeeding, it ought by no means to be neglected, as its success will make more than Ten thousand to one, in favour of it; but where we have a thousand chances to one of success, it ought to be incouraged. And where the honour of the State is so much at stake for a neglect, and on the other hand there can be nothing derogatory for giving proper encouragement, especially as New Jersey has taken notice of it before them, I cannot let in the most distant thought, but you will report to the House full as favourable as my most Sanguine Wishes.

JOHN FITCH.

This communication was sent to the Committee appointed at the previous session, to consider his Petition. On the 11th of September, they made the following favorable report:

"The Committee on the Petition of John Fitch, report:— That they have viewed his model of an invention for moving a Boat by means of a Steam Engine, of which they entertain a favourable opinion. That the s^d Fitch represents to the Committee, that he has began a boat on the river Delaware, but which from the narrowness of his funds, he shall not be able to compleat, without some public assistance. The Committee conceiving the design, if executed, will be of considerable public utility, recommend the following resolution:

Resolved, that a Committee be appointed to bring in a Bill, to authorize the Supream Executive Council, to direct payment of Mr. John Fitch's drafts, to any amount, not exceeding in the sum of £150, on proof made to them that the money so drawn for, has been applied to the purpose of compleating his Steam Boat,—they taking his security for repayment thereof, in twelve months."

The members of the Assembly were not as well disposed to the project, although money had been previously loaned to an individual,¹ they would not follow

¹ April 8th, 1786, the Assembly of Pennsylvania passed an act to loan Whitehead Humphreys £300 for the purpose of manufacturing bar iron.

the precedent. On the question, as to the adoption of the report, the ayes were 28, the nays 32. The persevering spirit of the projector would not permit him to abandon the hope of assistance, even after this rebuff. From the strong vote which his application received, he was led to hope that he might obtain individual subscriptions from the members of the House. In this view he wrote a letter to Gen. Thomas Mifflin, who was then the Speaker. He set forth at length the nature of his discovery, stated what had been done in reference to it, and continued with the following language:

HONOURED SIR — I seem now, for the want of money, to be under the necessity of giving my opinion, and risking my reputation on the success of the scheme. I am of opinion, that a vessel may be carried six, seven, or eight miles per hour, by the force of steam, and the larger the vessel, the better it will answer, and am strongly inclined to believe that it will answer for sea Voyages as well as for inland Navigation, which would not only make the Mississippi as navigable as Tide Water, but would make our vast Territory on those waters an inconceivable fund in the Treasury of the United States, and altho it will be too expensive for boats on Tide water, yet I believe it would answer a valuable purpose for Stages, Packets, and armed vessels, and that it would always be able to veer a vessel off a Lee shore, and make a quick and safe Voyage — and should I say, that we could always overtake any of the Piratical cruizers on the Coast of Barbary, so as to give them proper chastisement, perhaps I should not be thought more extravagant than I already have been, especially when I assert, if any oars can work mine can, and in the most violent gale, if it be a head wind, and that six tons of Machinery will act with as much force as ten tons of men; and should I suggest that the Navigation between this and Europe may be made so easy as shortly to make us the most popular Empire on Earth, it probably, at this time, would make

the whole very laughable. I am thus obliged, in some measure, to make myself liable for the success of the scheme, for the pitiful sum of £150, which the Original unfortunate thought has given me more trouble than my Savage Captivity did.

Yet, I cannot indure, since it is so nearly compleated, to give over the persute. I ask the subscription only till I can get my boat compleated, when I will return the money again.

I wish no gentleman to risque his reputation on my projects. Yet, if Mr. Mifflin could at some convenient time, as the report of the Committee having been favourable, see fit to encourage a subscription among the members of the House, he probably might render singular service to his country. I do not expect that the money which I need could be raised amongst so small a body; yet it would be a President for other Citizens, and I know of no way it could be compleated without. Was it a thing of trifling consequence to my Country, I would not persue it with such assiduity. But whilst I have the last glimmer of hope of compleating it, or one shilling to pay my hands, my ardour will not be abated. But if Heaven will not permit it, I will chearfully leave the execution of it to some who may be more fortunate.

Honoured sir, I do not present this to you as Speaker of the House of Assembly, but as a most worthy Citizen of the State; and pray you to pardon me for troubling you with this, as I shall ever be delicate in future in matters of this sort.

With the most perfect respect, Sir,

I beg leave to subscribe myself,

Your ever Faithful

And very humble Servant,

JOHN FITCH.

From the usual fortune which attended the efforts of this struggling man, it may be supposed that his appeal met with no response. General Mifflin did not interest himself in behalf of the scheme, nor was any subscription promoted among the members of the House of Assembly.

Notwithstanding this failure, he was still desirous of obtaining an exclusive right to use his invention. He renewed his petition to the Legislature of Pennsylvania for that privilege on the 2d of November. The memorial was referred to Messrs. Moor, Ross, and Whitehill, whose report was favorable. A bill was brought in giving to John Fitch, his heirs and assigns, the exclusive right to all boats propelled "by fire and steam." On the 20th of November it was read by paragraphs and passed to a second reading; and on the 28th of December, having abandoned the pumping boat, Arthur Donaldson, who now relied upon a steam wheel, "petitioned that Fitch might be restrained to steam navigation as he is now attempting it:" namely, by oars.

To this suggestion a long reply was written. The first portion of the answer boldly approached the inquiry whether Donaldson's plans were original. To this point Fitch cited the fact that Bernouilli had long before suggested the propulsion of a boat by voiding water from a trunk; which was partially the method spoken of by Franklin, and relied upon by his adversary. Further than that, it was declared that Thomas Paine, in 1776, and Mr. Henry of Lancaster, afterward, had suggested the plan of applying steam to the verge of a wheel as the method of producing a moving power. Coming down still later, it was proved, by documents obtained from the Philosophical Society, that after Fitch had laid his model and drawings before them, Dr. Franklin had, in December 1785, and before the date of Donaldson's pretended invention, suggested the identical plan which now was claimed by Donald-

son, whose first annunciation of *his steam-boat* was made some months afterward.

Leaving this branch of the subject, Fitch took up the great question of the controversy; which was, whether, having proposed certain accessories to the means of propulsion, he was to be confined to them, and restrained from the use of the steam-engine—which was the motive power—in any other way. He claimed for himself every method that might be devised to move a boat by the propelling assistance of steam. In reference to this matter, he said,

“I here produce *seven* different plans of applying the force of steam to a boat, and could produce four different models, if necessary; and if I should produce all the different methods that I have thought of, it would increase the number to *fifty*; and amongst these *the very mode which he proposes.*”

“It is the *force* and *power* that I contend for. As to the thought of applying that force to vessels I claim priority, and not the *mode* of application; as I do not expect to invent any new mode of propelling vessels, and I believe it may be applied a great number of ways with equal success. In short, it would be the height of imprudence for any man to undertake it unless every mode of propelling was given him.”

* * * * *

“But it is an undoubted fact that I am the first inventor of the steam-boat; and the difficulties that I have surmounted to bring it so far to perfection as I have, would be incredible were I to relate them; and not only that, but as I could not do it in a corner, I have set myself up as a mark of derision, and have suffered every insult that the contempt which the populace have for projectors could inflict. In short, I will venture to say very few persons would have undertaken so arduous a task. Is it reasonable to suppose that a man in my station of life would throw away near two years of the prime of his days, and encounter the difficulties that I saw before me, to accomplish this,

when I knew at the time I ought to exert every faculty to keep myself from the jaws of want. It must be supposed that I undertook it to make something by it; this is the case with some others; no person is willing to throw away their time or money except they make something by it in case they succeed.

* * * * *

"The propelling of a boat with steam is as new as the rowing of a boat with *angels*; and I claim the first thought and invention of it.

* * * * *

"I never pretended to be the first inventor of the steam engine, nor ever did Petition for an Exclusive right for them. I have never asked it in any other way than where it has never been applied, and I presume the World cannot produce a steam engine floating on the water. Neither do I conceive that all the Improvements that are yet to be made on steam are to be done on the water. He seems to intimate that I claim the whole use of steam. I have no pretensions to it for Pumps, Mills, Forges, Furnaces, &c., &c., nor for any thing whatever, except in water-craft.

* * * * *

I am obliged to say, that I have made the Greatest improvement on inland navigation that was ever made, since the first invention of Paddles or Oars—that is, Oars worked by Cranks, or Wheels to answer the purpose of Cranks,—this applies to strength of a horse, or Steam, or any other power, to equally as good advantage as men with Oars; therefore I can say that I have improved inland Navigation, nearly so much as the labours of men exceed the labours of horses."

* * * * *

"Sirs, there is another great improvement that I have made on the improved Steam Engine, that is to throw the Water out of the Vacuum against the Atmosphere without any friction, by which means there is a heavy friction of pumping water avoid."

This memorial was given, to the Committee of the House in March, 1787, to be read before the Assembly

if necessary. It contained in addition to the arguments referred to, some further account of his own affairs. He had at that time given Voight *five* shares out of his own twenty, and had already parted with four more to raise money to complete the work, thus retaining only eleven to himself, at a period too when it was evident that the hardest portion of the work was yet to be done.

The Committee of the Legislature was not impressed with the belief that Donaldson had a meritorious cause, and they presented no report whatever upon his claims. The bill securing the rights of Fitch was again taken up in the Assembly, and passed finally on the 28th of March, 1787.¹ This law was a copy of that already

¹ During the Confederation, and before the adoption of the Federal Constitution, the States generally exercised the prerogative of passing laws for the encouragement of useful inventions, which were analogous to patent laws. The acts for such purposes ratified in Pennsylvania, were as follow :

Arthur Donaldson, for "the Hippopotamus,"	Feb. 7, 1785
James Rumsey, for a boat to go against streams [the Pole boat].....	Mar. 25, 1785.
Whitehead Humphreys, for the purpose of manufacturing bar iron, a loan of £300..	April 8, 1786.
John Fitch, for the Steamboat.....	Mar. 28, 1787.
Oliver Evans, for various machines.....	Mar. 29, 1787.
John Hague, for a machine for carding cotton	Oct. 3, 1788.
John Hewson, for calico printing and bleach- ing.....	Mar. 27, 1789.
Robert Leslie, for improvements in clocks and watches.....	Sept. 7, 1789.
James Rumsey, for certain machines and devices, the pipe boiler, improvement in Grist mills, &c.....	Sept. 2, 1789.

They relented, and more money was furnished. The necessary alterations were made. The machinery worked exceedingly well, and there was plenty of steam. The boat was accordingly tried on the 22d of August, 1787. The Convention to frame a Federal Constitution was then in session in Philadelphia, and the members were invited to witness the experiment. The boat was tried near the place where it was built, and it was propelled by the power of steam. It went but slowly, however: the cylinder was only twelve inches in diameter, and the force of the machinery was not sufficient to move the boat at a rate of speed which would render it valuable for use on the Delaware as a packet-boat. Nevertheless, those who were present were satisfied that the trial had demonstrated that a boat might be moved by steam. In his journal, Fitch mentions that nearly all the members of the Convention were present, except General Washington. Gov. Randolph, of Virginia, "was pleased to give the invention Countenance," and Dr. Johnson, of Virginia, the next day sent the patient enthusiast the following note:

Dr. Johnson presents his compliments to Mr. Fitch, and assures him that the exhibition yesterday gave the gentlemen present much satisfaction. He himself, and, he doubts not, the other gentlemen, will always be happy to give him every countenance and encouragement in their power which his ingenuity and industry entitles him to.

Thursday afternoon, 23d August, 1787.

In the Diary of Rev. Ezra Stiles, of New Haven, Conn., under date 1787, Aug. 27, is the following entry:

"Judge Ellsworth, a member of the Federal Convention, just returned from Philadelphia, visited me, and tells me the Con-

or driven through the water by the force, power, or agency of fire or steam, as aforesaid, within the territory or jurisdiction of this State, every person or persons so offending, against the tenor, true intent, and meaning of this act, for each and every of such offence, shall forfeit and pay unto the said John Fitch, his heirs, exec^r, admin^r, or such other person or persons as he, the said John Fitch, his heirs or assigns shall authorize and empower for that purpose, the sum of one hundred pounds, to be recovered by action of debt in any Court of Record within this State, wherein the same may be cognizable, with cost of suit; and shall also *forfeit* to him, the said John Fitch, his heirs and assigns, all such boat, boats, or water craft, together with the steam-engine, and all appurtenances thereof, to be recovered in manner aforesaid, with cost of suit.

SECT. IV. Provided always, and be it further enacted by the authority aforesaid, That neither this act, nor any clause, matter, or thing therein contained, shall be taken, deemed, or construed to prohibit or prevent any person or persons from making, using, employing, or navigating within this State, any kind of boats or water craft heretofore invented, or hereafter to be invented on any other principle, construction, or model, which may be urged, impelled, forced, or driven along through the water by any other power, force, agency, or means, except fire, or steam.

Enacted into a law at Philadelphia, on Wednesday, the twenty-eighth day of March, in the year of our Lord one thousand seven hundred and eighty-seven.

PETER ZACHARY LLOYD,

Clerk of the General Assembly.

Signed, by order of the House,

THOMAS MIFFLIN,

Speaker.

"Laws No. 3," page 213.

Whilst this application was pending, and the controversy with Donaldson was unsettled, application for a special law securing the rights of Fitch in the steam-boat for fourteen years, had been made to the State

of Delaware, and an act to that effect was passed Feb. 3, 1787.

As soon as the Assembly of Delaware had given the requisite encouragement, a petition was preferred to the Assembly of the State of New York. Fitch presented his memorial on the 24th of February. It was referred to a Committee, consisting of Messrs. Sickles, Jones, and Hamilton. On the 27th a favorable report was made, and a bill pursuant to the prayer of the petition was brought in, which was finally adopted on the 19th of March.

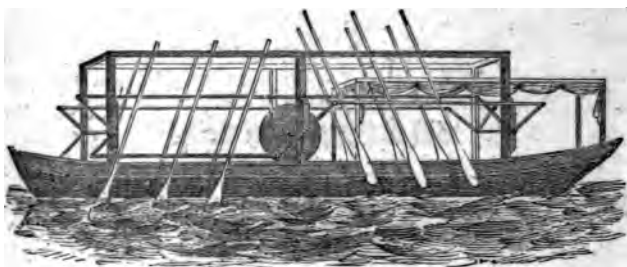
CHAPTER XIII.

THE FIRST STEAMBOAT FINISHED—SUCCESSFUL TRIAL
EXPERIMENT IN 1787.

WHILST the unflagging energy of the projector was manfully struggling with the difficulties which surrounded him, whilst his attention was diverted from his scheme by the efforts of Donaldson, and by the prosecution of measures necessary to procure the passage of laws securing him his rights in Delaware, New York, and Pennsylvania, the work upon the boat was slowly progressing. The supplies of money were but small, and there were many obstacles to the industrious continuance of the enterprise. An engraving and description of the boat had been prepared, and was published in the *Columbian Magazine* for December, 1786.¹ An account of the machine was then given; which, not being correct, a more detailed statement was published in a succeeding number, as follows:

“It is to be propelled through the water by the force of steam. The steam engine is to be similar to the late improved steam engines in Europe, those alterations excepted. The cylinder is

¹ The drawing of this vessel, given on next page, is as it appears in the *Columbian Magazine*. Being prepared before the boat was built, the necessity of having a smoke-pipe was not adverted to. There is no doubt but that the steam-boat had one from the beginning; but in this illustration we have preferred to follow the original.



John Fitch's Steamboat of 1786-'87.

to be horizontal, and the steam to work with equal force at each end thereof. The mode of forming a vacuum is believed to be entirely new; also of letting the water into it, and of letting it off against the atmosphere without any friction. The undertakers are also of opinion that their engine will work with an equal force to those late improved engines, it being a twelve inch cylinder. They expect it will move with a clear force, after deducting friction, of between eleven and twelve hundred pounds weight; which force is to be applied to the turning of an axle tree on a wheel, of 18 inches diameter. The piston is to move about three feet, and each vibration of the piston turns the axle tree about two thirds round. They propose to make the piston to strike thirty strokes in a minute; which will give the axle tree about forty revolutions. Each revolution of the axle tree moves twelve oars five and a half feet. As six oars come out of the water six more enter the water; which makes a stroke of about eleven feet each revolution. The oars work perpendicularly, and make a stroke similar to the paddle of a canoe. The cranks of the axle tree act upon the oar about one third of their length from their lower end; on which part of the oar the whole force of the axle tree is applied. The engine is placed in about two thirds of the boat, and both the action and reaction of the piston operate to turn the axle tree the same way."

It is very much to be regretted that the information given in this paragraph is the most connected statement that remains of the nature of Fitch's steam-

engine. The drawings and papers deposited by him with the American Philosophical Society have long since disappeared from the archives of that association. The model and drawings which were in the United States Patent Office were burned in 1836. The MS. journals of the inventor, although full in regard to everything else, contain no clear statement of the manner in which the steam-engine was to be constructed. We can only judge from the short account given in the *Columbian Magazine*, that both Fitch and Voight were acquainted with the latest European improvements. It was only in 1782 that Watt patented the double-acting steam-engine, working "with equal force at each end;" and except the model at Soho, he made no other on that plan until 1787. Condensation had previously to that time been performed in Bolton and Watt's engine, by surrounding the cylinder with cold water. It is to be inferred from Fitch's statement that he had adopted the use of a jet of cold water at the top of the condenser, which he believed to be entirely new. It was so in Bolton and Watts' engines, but it had been used by Desaugeliers in the atmospheric steam-engine long before. Watt finally introduced the jet condensation, but it does not seem to be known at what period he adopted that method. Fitch believed the plan to be original with him. Up to 1780 the great difficulty among engineers seemed to have been to convert the vibratory motion of the piston into a rotary one, so as to turn a wheel. This matter, which is now seen to be simple, was in reality *pons asinorum* to the early improvers of the steam-engine. Curious contrivances by pulleys, ropes, half-ratchets working

on arched tooth-sectors, ratchet-wheels, endless chains moved upward and downward like a window-sash, and other methods of like nature, were resorted to or proposed by Hulls, Fitzgerald, Clark, Stewart, and Wasbrough, between 1736 and 1779. In the latter year, Matthew Wasbrough invented the most practicable application yet proposed, by a system of ratchet-wheels, and the employment of a fly-wheel, to carry the action beyond the dead point. During all this time, throughout the civilized world the treadle of the lathe and spinning-wheel, which by a crank adjustment created a perfect rotary motion, were used before the eyes of these industrious schemers; but they were too blind to see that the same principle was all that was needed to make a piston, working backward and forward, turn a wheel. It was in 1780 that James Pickard patented a short lever or crank, on the extreme end of the axis to be turned round, united by a pin to a rod joined to the end of the great working lever, so as to turn the crank round once to every stroke of the engine. This was the great desideratum; and with that simple substitution for the intricate and imperfect methods previously used to obtain a rotary motion, the value of the steam-engine (which before that time had scarcely been employed for anything but pumping) became immensely increased.¹ All these things seem to have been known to the steam-boat company, and their plan of an engine was essentially Bolton and Watt's double-action engine — by introducing steam alternately above and below the piston, by condensation in a separate vessel, and by the air-

¹ Farey's History of Steam-Engines.

pump, to draw off the condensing water and air from the condenser, so as to form a more perfect vacuum, and to add to the expansive effect of the elastic steam. We shall see, however, that, perfect as were Fitch and Voight in the theory, they were embarrassed in practical success by their ignorance of the respective proportions which the boiler, cylinder, condenser, and air-pump ought to bear to each other. The exact and scientific relation of these parts of the engine upon the perfect mechanism of the whole had not then been ascertained by any engineer, and our American constructors were forced to grope in the dark, as it were, feeling their way, and being painfully instructed by the comparative failure of the different parts of the engine, that they were only making experiments where they had hoped for triumphant success.

The passage of the law by the State of Delaware, the great probability that the experiment would be successful, and the presumption that the money already expended might be reclaimed, led to an agreement among all concerned to make new advances. A deed for that purpose was accordingly drawn. It was dated Feb. 9, 1787, and is now in the possession of the American Philosophical Society, with which it was deposited some years ago by Dr. Benjamin Say. It was entitled, "an Indenture for reciprocal advantage," and recited that "John Fitch had invented a method of propelling or driving a boat through the water by the agency and force of steam, but not being of an ability to carry the same into an experiment and effective use and service, did therefore contract with certain subscribers, conveying unto them, in consideration of their aid and assist-

ance to him rendered, for the purport of carrying the aforesaid invention into effect, certain privileges, advantages, and emoluments, to arise from and issue out of, the said invention; and that the agreement was not thought sufficient for the future interests of the company, and that a new one was therefore made." The regulations specified by the instrument were in substance as follow:

1st. That the whole interest was to be divided into forty shares; and John Fitch conveyed every interest and advantage that he had in the invention to the subscribers, in proportion to their shares, the residue to be held as property of John Fitch.

2d. John Fitch was to be considered as a member having no greater superiority than other members of the company.

3d. In balloting, every member to have a vote for all shares less than three, but not to have more than three votes, although he might own more than three shares. Questions to be determined by a majority of votes by shares.

4th. Five directors and a treasurer to be elected two days after signing the articles. The same officers to be elected thereafter, in January of each year.

5th. The company to have stated meetings on the first Monday of the months of January, April, July, and October, in each year. Alterations in the articles might be proposed at one quarterly meeting, be voted on at the next, and if then sanctioned, be brought up for final adoption at the third quarterly meeting. Dividends to be made in April and October.

6th. Directed how shares might be transferred and assigned.

7th. Related to the organization of the Board of Directors, and their powers, &c. They were granted authority to lease the boats of the company for six months without a vote of the shareholders, but not longer. They might contract debts not exceeding £100. They were to have a secretary, hold regular meetings, and keep minutes.

8th. Prescribed the duties of treasurer.

9th. "And whereas the said John Fitch, in the course of his experiments, hath constructed a method of moving a boat in such manner, as that the power of horses or cattle may be advantageously employed, it is agreed and understood that all the benefits to be thereby derived are to be held and enjoyed by the company in the same manner and under the same rules, as in the movement by steam."

This agreement was signed by all the members of the company, at that time, *viz.*: John Fitch; Samuel Vaughan, one share; Richard Wells, one share; Benjamin W. Morris, one share; Richard Stockton, three shares; John Morris, one share; Joseph Budd, one share; Benjamin Say, two shares; John and Chamless Hart, one share; Thos. Say, one share; Magnus Miller, one share; Gideon Hill Wells, one share; Thomas Hutchins, one share; Richard Wells, junior, one share; Richard Stockton, for John Strother, one share; Israel Israel, one share; William Reubel, one share; Edward Brooks, jr., one share; Henry Voight, five shares; Henry Toland, one share; Thomas Palmer, one share.¹ It will thus be seen that twenty-seven

¹ The following brief note of the residence and occupation of these gentlemen will not be inappropriate.

shares had already been parted with by Fitch, so that his own interest had been reduced from twenty shares to thirteen.

In May, 1787, the steam-engine was completed, but

HENRY VOIGHT, clock and watch maker, in 1785 resided in Second between Race and Vine streets.

SAMUEL VAUGHAN very probably resided with his son, John Vaughan, merchant, who, in 1785, lived in Chestnut st. between Fifth and Sixth, and in 1793 at 111 South Front st. He was a member of the American Philosophical Society, and a useful citizen. In Philadelphia he is remembered as the first person who proposed that the State-House yard should be planted with trees. He died Dec. 4, 1802, aged 85 years.

RICHARD WELLS, merchant, in 1785 resided at No. 28 North Third st. In 1793 he was cashier of the Bank of North America.

RICHARD WELLS, JR., son of the above.

GIDEON HILL WELLS, merchant, lived in 1791 at 123 South Second st. In 1793 he resided in Mulberry st. between Fifth and Sixth, south side.

BENJAMIN W. MORRIS, wine merchant and grocer, 58 Dock st., resided in 1791 at 110 South Second st.

JOSEPH BUDD, hatter, resided in 1785 and in 1791 at No. 7 North Second st.

BENJAMIN SAY, physician, lived in 1785 in Second st. between Arch and Race sts., and in 1791 at 64 South Second-st. He was the son of

THOMAS SAY, who, in the Directory of 1785 and of 1791, is styled "gentleman, No. 10 Bread st." Thomas Say held peculiar views upon religious subjects, which are related in his Life, as published by his son. Thomas Say, his grandson, and son of Dr. Benjamin Say, was a leading member of the Academy of Natural Sciences, and other important societies. A sketch of his life by Dr. B. H. Coates is to be found in Vol. 5th of Waldie's circulating Library.

RICHARD STOCKTON, of New Jersey, a son of Richard Stockton, a signer of the Declaration of Independence, was not at

it was found that "the *wooden* caps to the cylinders" admitted air. They were also horizontal, and "the piston was leaky." Money was advanced by the company to set them right. The machinery was all taken out from the foundation and set up again — a very tedious job. After a heavy expenditure and a waste of time, the works were again fixed with a perpendicular cylinder. It was then discovered that the condensation was imperfect. They were obliged to "throw the condensers away," and procure others according to

this time a permanent resident of Philadelphia, although he seems to have been often in the city. He probably lived in Princeton.

MAGNUS MILLER, merchant, in 1785 lived in Front between Walnut and Spruce, and resided in 1793 at 129 South Second-st.

DR. JOHN MORRIS lived in 1785 in Chestnut st. between Front and Second, and in 1791 at 11 Pear st.

JOHN HART and CHAMLESS HART, merchants in 1785 in Front st. between Walnut and Spruce.

THOS. HUTCHINS, Geographer-General of the United States, born in New Jersey about 1730, the author of several topographical and historical works, became a member of the steam-boat company in 1785, died in 1789, was not a citizen of Philadelphia.

JOHN STROTHER, a protégé of Richard Stockton, and most probably a resident of New Jersey.

ISRAEL ISRAEL, inn-keeper, in 1785 kept the Cross Keys corner Third and Chestnut sts. He was at one time Sheriff of the City and County of Philadelphia.

WM. REUBEL. Of this gentleman we have not been able to ascertain any memorial.

EDWARD BROOKS, iron-monger in 1791 at 103 High st.

HENRY TOLAND, grocer in 1785 and 1791 at Nos. 5 and 14 North Third st.

THOS. PALMER, merchant, in 1785 resided in Front st. between Market and Arch.

the draft of Voight, who entitled his invention "a pipe condenser." Several other forms of condensers had been previously tried, but were found to be useless. The steam valves were also imperfect. In lieu of these, Voight invented a double cock, "through which the steam could pass to the cylinder, and when it had done its work to repass said cock to the condenser." Whilst these alterations were being made, the projectors and the company were expectant, but as soon as one defect was remedied another became apparent. At length it was supposed that everything was perfect, but, lo! a new and unforeseen difficulty arose. The engine worked so briskly that the boiler could not furnish sufficient steam to supply it continuously. Yet the boat had been moved, and at a rate, too, when going, of three or four miles an hour; but frequent stoppages were necessary to accumulate fresh supplies of steam. The shareholders now became discouraged, and some of them abandoned the project. Fitch in despair was inclined to give up the attempt, but he determined to try another appeal. He prepared a piece for publication, hoping to gain new sympathy from persons who had not yet aided him. This interesting paper was in the following words :

The laws of God are positive; and he that does not comply with them in the strictest sense cannot expect success. His laws are equally positive in every branch of Mechanism, and in all sciences, as in other things, and I do not know of more than one man on earth that perfectly understands them all, and would willingly give £1000, if I had it, to be made infalible and consecrated Pope for one year. I acknowledge I was vain in undertaking a business which I knew nothing about, that has taken near a Century to bring to perfection,—I mean the steam-

engine,—especially when it was to be applied to a different purpose from any heretofore in use ; yet I doubt not but my phrenzy in this will be forgiven when every circumstance which Prompted it is duly weighed. When the Greatest and most Brilliant King of France and the Potent Empress of Russia did not think it beneath their dignity to promote one of the first powers in nature into their Empires, it imboldens me to suppose that the patriots of America would not look down upon it with contempt; especially when so many of the first characters approved and assisted in so great an undertaking. But the several circumstances which forced me into it would be too tedious a detail. But may it suffice when I say I am of opinion, and ever have been, that the force of steam may be applied to great advantage to vessels from Twenty tons burthen and upward. My first principles are these, & I know that they are strictly conformable to the great laws above referred to: Take two equal forces, and apply them in an equal manner to two vessels of equal dimensions and weight, they must go equally fast.

From my method of rowing, I have found by actual experiment that an equal force will carry a Boat faster than any method heretofore used ; consequently, I know that if I have the force of 50 men, I can carry the boat as fast as 50 men can. From these principles, I say that all boats from 20 tons burthen and upward may at all times be carried as fast as a twelve oared Barge can be rowed, provided we have skill to execute and to proportion our works ; which propositions and assertions cannot be controverted by any who are acquainted with the principles. Now, on the supposition that these facts are well founded, I beg leave to suggest the advantage it would be to the United States. I suppose a 12 oared barge would make equal speed with a stage waggon ; and in many parts of the states travelers could be accommodated with it ; which would save a great expence of horseflesh and feed — travelers better accommodated than in Waggons, their fair cheaper, and less fatigue.

And where streams constantly tend one way, great advantage will accrue to inland navigation ; and in particular to the Mississippi and Ohio rivers, where the God of Nature knew their banks could never be travassed with horses, and has laid in a

store of fowl on their head waters sufficient to last for the latest ages, for the very purpose of navigating their waters by fire; an estimate of which I beg leave to make:

It takes 30 men to take a boat of 30 tons burthen from New Orleans to the Illinois. Their wages, provisions, Taffy, and other perquisites, cannot be estimated at less than 100 Dollars per man per trip; which must cost 3000 Dollars to transport 30 tons too and from New Orleans to the Illinois. Now, I say, could I be enabled to compleat the Experiment, I will obligate myself to make a boat of 60 tons burthen, with the Engines and all compleat for the voiage, for 2000 Dollars; and as that could work double the hours as men at Oars, it could go in half the time, and transport 120 tons in the same time that the other would 30 tons; which, at the rate they now charge, would pay for itself and clear 10000 Dollars whilst one boat could make one trip—and larger boats could be made to greater advantage. It would also raise the value of land in the western territories in proportion.

It may be said that the Spaniards will not allow us a trade down the River. They cannot refuse us one up, and I believe at or near the falls of St. Anthony may be nearly as good a stand for the Fur trade as Hudson's Bay, which is worthy the attention of the most potent Emperor. It may be objected that it takes up too much room, and is too weighty.

In a Bote of 100 Tons, it would not take up as much room as in this of 15 tons; as the Engine could then be placed through ships, and it may be made with less weight than we have now on board in this. But nothing is more cumbersome and burdensome on Board of a Boat than men and Baggage; and 6 ton of Machinery will take a Boat up the Mississippi sooner than Ten ton of men, baggage, and provisions. It may also be said, it may be liable to get out of order, it being so complicated. Was that the case it could not answer so valuable a purpose for Pumping mines, turning Mills, &c. But the fact is, most parts cannot get out of order till wore out, if once put in good order; and those parts which may get out of order are those that may in a short time be rectified. But the Grand and Principle object must be on the Atlantick; which would soon overspread the

wild forests of America with people, and make us the most opulent Empire on Earth, and at all times carry on a trade on the Coasts of Barbary with impunity, and Chastize them at pleasure. *Pardon me, generous public, for suggesting ideas that cannot be digested at this day.* What opinion future ages will have of them, time only can make manifest. But it is sure that the Laws of God in Machinism have permitted a steam Engine to work on Board of a small Boat equally as well as if it had been placed on Land, and rowed the Boat at the same time, notwithstanding we had frequently to stop, and for no other reason than for the Want of steam; and the same law will permit me to make steam sufficient on Board a Vessel as on Land, was my Boiler properly constructed, unless nature should recoil so far as that the boiling of water will not produce it. And every one—even the most obstinate Blockhead—that saw it must be convinced, if the Engine worked sufficiently steady and forcible, it must answer to my utmost wishes. But I know, let these things be ever so well founded on reason and fact, at this day they cannot be looked upon but as delusive, and the effects of Lunacy. Therefore pray that I may be enabled to be useful to mankind in the way that is known and practiced to advantage.

How many parts of America is there that Mills can scarcely be obtained, and what wants of exportation for the wants of proper Mills I could not attempt to describe. When future ages shall rever great Lewis the 16, for promoting the happiness and interest of Mankind, will there be no sons of Columbia to eclipse some of those dazzling rays of that Mighty Monarch, and introduce one of the first powers of Nature into our Empire? After a long, tedious, and expensive process, Engineers are now introduced into our Territory, and as a Citizen of the States, feel myself much indebted to the generous Characters which have effected it, and it would give me extream pain to see so valuable a Branch of machinism perish for so trifling cultivation as is necessary at present. And should I be patronized in my pursuit, and did not render every service in my power to my country, or State, that should do it, or fully compensata my Patrons, I would suffer myself to be called ungrateful, and my patrons must go on as sure ground as there is honour in the United

States. Congress gave Mr. Rumsey assurance of a considerable tract of teretory on the North side of the Ohio, provided he carried a Boat on the Ohio 50 miles in a day by his machinism. To estimate the Ohio to set at 1 mile per hour, which at low water it does not exceed, I have carried my Boat at the rate of 54 miles per day, against that stream ;¹ and as I had no reason to believe that it was offered to him as being a favorite Citizen, when I became acquainted with his principles, it induced me to undertake it on others [on other principles]. And if the Carrying of a Boat up the Ohio, 50 miles per day, merits 30 thousand acres of Land, 55 miles per day is worth 60 thousand acres, and 100 miles worth three such tracts of Teretory, or at least would make that country ten times as valuable, and although I have not carried my boat 50 miles per day against the Ohio, yet as long as I have carried it at that rate on other waters, I think that I am justly entitled to the reward. Therefore, whoever will patronize my scheme will lay out their money on as sure ground as the Honour of our Empire, and if we can bring it to the perfection which I expect, may reasonably expect very considerable more than has been offered, and if we do no more than has been done, may expect to be well rewarded for our time and expence, as Congress will never take the advantage of me on a't that there was no previous contract made.

But why those earnest solicitations, to disturb my nightly repose, and fill me with the most exoruciating anxieties ; and why not act the part for myself, and retire under the shady Elms on the fair banks of the Ohio, and eat my coarse but sweet bread of industry and content, and when I have done, to have my body laid in the soft, warm, and loomy soil of the Banks, with my name inscribed on a neighbouring poplar, that future generations, when traversing the mighty Waters of the West, in the manner that I have pointed out, may find my grassy turff, and spread their cupbord on it, and circle round their chearful

¹ The meaning of this passage, which is imperfectly expressed, is undoubtedly that, according to the rate that the steam-boat went on the Delaware, it was obvious that it could be propelled on the Ohio 54 miles a day.

Knogins of Whiskey, with three times three, till they should suppose a son of misfortune could never occupy the place.¹

The Steamboat has been a matter of great speculation and discourse, and I think it my duty to inform the public that I am obliged to quit it puerly for the want of rescourses, after it is demonstrated as clear as one of Euclids problems, that it may answer a Valuable purpose.

But I thank my God for the persevereance he has given me, in carring to such length as I have, and for the tranquillity of my mind which I feel at Present, altho in some respects I have thrown mysele in very allarming circumstances, but should I once reach the fertile plains of Kentucky, and there injoie my health, I would bid defiance to the blind unguided frouns of fortune, and when once in calm retirement, the promis of Riches or favour of courts will not be solicited. I have long resided in the State of Pennsylvania, and confess that I leave it with reluctance. I return them my most sincear thanks for the protection which I have received from the Laws, and humbly beg leave to give her a cordial farewell, as I now expect to become a Citizen of another state. It would have given me a heartfelt pleasure, could I have rendered more and an immediate service to the State than I have, yet please myself with the Idea, when I am sleeping under the Poplar in the lofty forests of Kentucky, my feable attempts will be found of that use which I now wish them to be. Yet doubt not, but I shall be censured by the guiddy and unthinking, but if the number does not exceed those that could mend what I have done, I retire with content, and fully satisfied to say farewell.

JOHN FITCH.

Without sending this article to the newspapers, he showed it to several of the principal stockholders.

¹ Concerning this remarkable passage, he wrote in 1792 — "I confess, at the time of my writing this, that my Ideas of happiness were somewhat singular, that the Summit of my everlasting Bliss should extend no further than being surrounded with a set of Drunken Boatmen, but as they are generally the honestest part of the community, and more liberal according to what they possess, I will not retract what I have said."

They relented, and more money was furnished. The necessary alterations were made. The machinery worked exceedingly well, and there was plenty of steam. The boat was accordingly tried on the 22d of August, 1787. The Convention to frame a Federal Constitution was then in session in Philadelphia, and the members were invited to witness the experiment. The boat was tried near the place where it was built, and it was propelled by the power of steam. It went but slowly, however: the cylinder was only twelve inches in diameter, and the force of the machinery was not sufficient to move the boat at a rate of speed which would render it valuable for use on the Delaware as a packet-boat. Nevertheless, those who were present were satisfied that the trial had demonstrated that a boat might be moved by steam. In his journal, Fitch mentions that nearly all the members of the Convention were present, except General Washington. Gov. Randolph, of Virginia, "was pleased to give the invention Countenance," and Dr. Johnson, of Virginia, the next day sent the patient enthusiast the following note:

Dr. Johnson presents his compliments to Mr. Fitch, and assures him that the exhibition yesterday gave the gentlemen present much satisfaction. He himself, and, he doubts not, the other gentlemen, will always be happy to give him every countenance and encouragement in their power which his ingenuity and industry entitles him to.

Thursday afternoon, 23d August, 1787.

In the Diary of Rev. Ezra Stiles, of New Haven, Conn., under date 1787, Aug. 27, is the following entry:

"Judge Ellsworth, a member of the Federal Convention, just returned from Philadelphia, visited me, and tells me the Con-

vention will not rise under three weeks. He there saw a Steam-Engine for rowing boats against the stream, invented by Mr. Fitch, of Windsor, in Connecticut. He was on board the boat, and saw the experiment succeed."¹

In December of the same year, David Rittenhouse, the celebrated astronomer, Andrew Ellicott, Professor in the Episcopal Academy, and Dr. John Ewing, Provost of the University of Pennsylvania, gave the following certificates of the performance of the boat at the time to which we have referred and subsequently :

These may certify that the subscriber has frequently seen Mr. Fitch's steamboat, which with great labour and perseverance he has at length compleated, and has likewise been on board when the boat was worked against both wind and tide, with a very considerable degree of velocity, by the force of steam only. Mr. Fitch's merit in constructing a good steam engine, and applying it to so useful a purpose, will no doubt meet with the encouragement he so justly deserves from the generosity of his countrymen ; especially those who wish to promote every improvement of the useful arts in America.

DAVID RITTENHOUSE.

PHILADELPHIA, Dec. 12th, 1787.

Having also seen the Boat urged by the force of steam, and having been on board of it when in motion, I concur in the above opinion of Mr. Fitch's merits.

JOHN EWING.

From the well known force of steam, I was one of the first of those who encouraged Mr. Fitch to reduce his theory of a steamboat to practice ; in which he has succeeded far beyond my expectations. I am now fully of opinion that steamboats may be made to answer valuable purposes in facilitating the internal navigation of the United States, and that Mr. Fitch has great merit in applying a steam engine to so valuable a purpose, and entitled to every encouragement from his country and countrymen.

ANDREW ELLICOTT.

PHILADELPHIA, December 13th, 1787.

¹ Duykinck's *Cyclopedia of American Literature*, vol. I., p. 161.

Whilst the Company were pleased with the result of this experiment, the fact that the engine was not of sufficient power for a passage-boat or packet was most apparent. That fresh expenditures would be necessary to procure a larger cylinder, and to reconstruct all the works to suit, was also evident. In this posture of affairs, Richard Wells, Richard Stockton, and Dr. Benjamin Say, three of the most earnest among the shareholders, undertook to procure further advances. They were successful in inducing their companions to yield more assistance. The patterns for an eighteen-inch cylinder were procured, and Fitch set out in October to Warwick Furnace, in New Jersey, to have them cast. Upon his return he was informed that a person from Virginia had told some members of the Company that James Rumsey, of Virginia, was claiming to be the inventor of a steam-boat.

This person, it was afterwards ascertained, was William Askew. "He told so many unaccountable stories about it," said Fitch, "that he gained but little credit with the Company as to the truth of the main story itself. For my own part, I could not credit it, but suspected him to be a man that wished to tell great stories; but I could not [did not] see him myself."

It was well known to Fitch and his associates that in 1784 Rumsey had invented a mechanical boat, propelled by hand-labor, and by the force of the streams of rivers which borrowed the power of the current, to work setting-poles and wheels. Being aware of the real nature of Rumsey's invention, he was unprepared for the claim now made by the latter — that he had invented a boat to be propelled by steam. He was of

opinion that the idea of employing steam was an *after-thought*, adopted by Rumsey after Fitch's petition to Congress in 1785, and his subsequent proceedings had become notorious, and after experiment had satisfied Rumsey that the pole-boat was impracticable, or rather not of sufficient utility to be worthy of employment.

In order to refute this claim, Fitch immediately procured the certificate of Edward Pennington and others, who had seen Rumsey's boat work, that it was propelled by water-wheels and setting-poles, and that there was no steam used.

With these proofs he set out to Virginia, to ask from the Legislature of that State the passage of a law to secure him in his rights. He reached Richmond in the latter part of October, and saw in the House Colonel Powell, of Loudon County, with whom he was acquainted. To him he showed his papers, including the letter of Ex-Governor Johnson, of Maryland, given Nov. 25th, 1785. On reading the latter, Colonel Powell called to Colonel Clapham, who was a brother-in-law of Ex-Governor Johnson, and who also lived in Berkeley County, near James Rumsey.

When Clapham read it, very significant looks were exchanged between himself and Powell. Whilst Clapham did not come out in determined opposition to Fitch, he urged the existence of the law in favor of Rumsey before the Committee which was appointed to consider the petition of the new claimant. General Wood and Colonel Wills, of the Senate, had seen Rumsey's boat in motion at Bath, in 1784: and they attended before the Committee, and testified that it was entirely different from Fitch's boat, and that it

was not moved by steam. Beside this, the claimant immediately set to work to pen his reasons why he believed that Rumsey's law ought not to prevent the passage of one securing to him special rights in all boats "moved by *fire and steam*."

In that paper he argued that Rumsey was entitled to nothing under the law but the use of his own boat, which it was notorious was not a *steam-boat*. If he had really invented a steam-boat, and was dishonest enough not to communicate it to the public, he was not entitled to any reward, because the public would thereby be deprived of the benefit of the invention. If he had even communicated his discovery to some persons, he was entitled to no patronage; because they might die, and the secret die with them. It was urged that the first inventor who lays his discovery before the public ought to be encouraged; and as Fitch laid the plan of his steam-boat before Congress in August, 1785, and before the Legislature of Virginia in December of that year, he was entitled to the protection which he asked. In New York and Pennsylvania, laws had been passed giving Rumsey every right to which he was entitled in his own boat. The same states had afterwards given special rights to Fitch, because it was not thought that the acts securing the privileges of the former were in any manner infringed by those protecting the latter. When Fitch was before in Virginia, in 1785, there was no idea broached by any one that Rumsey had invented a *steam-boat*. The bond which Fitch had given to Governor Patrick Henry, to produce a steam-boat in the waters of Virginia when a thousand copies of his map were sold,

was referred to, and it was argued that if Governor Henry had supposed that Rumsey's law had any reference to a steam-boat, he would not have permitted the execution of an instrument the condition of which was that a law of the State should be broken. It was also suggested that the law securing Rumsey's rights was ambiguous and imperfect,—his invention was not described,—so that there was no ascertaining what rights were secured by it except by common report. These topics were urged with ingenuity, and at length, and they produced an effect. The Committee reported favorably, and the Legislature of Virginia, on November 7, 1787, passed a law in the terms of the Pennsylvania statute, securing Fitch's rights in the steam-boat for fourteen years; conditioned, however, that the privileges thereby granted should be "void at the expiration of three years from its commencement, unless the said John Fitch shall then have in use, on some river of this commonwealth, *boats*, or craft of at least twenty tons burthen, constructed and navigated as above described."

In Maryland the same paper was shown to the Committee appointed on Fitch's petition for a special law. There was added to it this argument, that in his petition to the Assembly of that State, Rumsey had said that his plan was for "navigating boats against the currents of very rapid rivers, at very small expence." "Now," urged Fitch, triumphantly, "the cost of a steam-engine is eight times that of the boat itself; it was impossible that he meant the steam-boat." He also referred to the favorable report in relation to his scheme, made in 1785, to the Maryland Legislature,

and argued that it would not have been sanctioned if his steam-boat had in any manner interfered with Rumsey's law. In the Assembly at Annapolis was Gov. Thomas Johnson, to whose letter we have hitherto referred. This gentleman had now changed his ground, and was disposed to thwart the man whom, in Nov., 1785, he had furnished with a very flattering testimonial of merit and originality. He threw some obstacles in the way of the petitioner, but finally believing that Gen. Washington would certify that he had seen a *steam-boat* propelled by Rumsey, at Bath, in 1784, agreed to rest the question, whether Fitch's law should be resisted on the reply to that enquiry. This created delay, and Fitch, not having time to wait, left Annapolis. In consequence of his not pushing the matter, the law was not passed.

Among the few evidences preserved of the intercourse between Fitch and his family, is a letter written about this time, and addressed to his daughter Lucy, dated Dec. 18, 1787, from which the following extract has been made:¹

"You express a tender regard for your mother, which strongly recommends you to me. Should I be enabled to throw a fortune in your way, and you should neglect your mother, I should think you too base to be my daughter."

¹ Whittlesey: Sparks' American Biography.

CHAPTER XIV.

APPLICATION TO CONGRESS—JAMES RUMSEY'S STEAM-BOAT.

WHEN the inventor returned to Philadelphia, the funds of the company were again nearly exhausted, and there seemed to be but little prospect of completing the boat with the means provided. Hope was now indulged that Congress would act favorably, and Fitch went to New York, where that body was sitting, and presented the following memorial:

To His Excellency, the President of the United States, in Congress assembled—

The subscriber humbly begs leave through you, to represent his situation, and reasons why he has presented a Petition to the United States, praying encouragement to his Steam Boat. I beg leave to inform you, Sir, that my embarrassments is really such, that I am under the necessity of praying Congress to give me some assistance. I know that Congress are delicate in running into projects, for fear of having the honour of our Empire stained by adopting chymical whims. Yet when matters are well ascertained, the greatest honour that Princes can do themselves, is to promote Useful arts. That part of life shines with much more lusture in peter the great than all his acquired glories in his just Wars. I know that the finances of Congress are small at present, of course; I know that they have not money to give, yet was they to give me land I could turn that into money, and compleat my undertaking. The report of a Committee of Congress on Mr. Rumseys petition,¹ now lying on

¹ This was for encouragement for the mechanical, or pole boat, for working against streams.

your files, appearing to me as a reward held forth to the public for promoting inland navigation, and being convinced that I have merited the reward by carrying my Boat on the Delaware with velocity sufficient to move at the rate of 60 miles pr day against the Ohio, when the Water is low, and also being strongly urged by necessity, emboldens me to present the afore mentioned Petition.

I do not desire at this time to receive immoluments for my own private use, but to lay it out for the benefit of my Country.

And should they think that a proper medium that would not be too much, and so that I should not apply to them again, it would probably effect one of the greatest things that was ever exhibited to the World, and Congress might at a future day, reward me further, accordingly as they should see the utility of the scheme merited it. I know, Sir, that there is doubts yet remaining, whether it will ever answer a valuable purpose or not, I beg leave to say that two of the most obstinate questions that could be asked is fully Decided. The first is, Can an Engine be placed in a boat so as to work; the 2nd, Can a Boat be made to carry an Engine? We find that it is resolved to our satisfaction.

There is other objections that yet causes doubts. The first is, Can we make it go fast enough to answer a valuable purpose? 2d, Will it not be so weighty that it will not be valuable? 3d, Will it not take up so much room as to render it useless? 4th, Will it not be continually getting out of repair? 5th, Will not the expence over run the profits? As to the first, we can obtain any force that we wish for; of course, we can carry it any distance, in a given time, we choose, provided our works are strong enough to stand, and I expect they may without much difficulty be made to go *Eight miles per hour*, and it is out of the power of man to estimate the power of a vessel that would go at that rate. And as to the room, — a Vessel of 100 tons burthen would not take but about seven tons of machinery to work it, and in a vessel of 300 tons burthen it would be lighter than most sails and Riging. Of course, for river vessels on the Mississippi, it would be lighter than men, baggage, and provisions; for Sea vessels lighter than the present mode, and as to repairs, Heaven

has so decreed, that whatever Machinery is most useful to mankind is generally least liable to get out of repair, and particularly as for the Steam Engine, as complicated as they be. I expect that the labour of One man would keep three such engines in perpetual repair as turns the Mills at Blackfriars Bridge. Neither do they expect that they are Idle two days in a year, on ac't of the repairs of the Steam Engines, which Engine would be sufficient for a first rate man of war.

And as to the expence, labour that could be done by three or four men it would never be worth while to erect a engine to do it; but where it could do the business of 10, 20, or 30 men, it may be applied to advantage, and it is immaterial whether it be applied to a Pump, to a Mill, or to a vessel.

I am persuaded, for a vessel of 300 tons, that an Engine sufficient for her, could be made for less money than for masts, sails, and riging. And when I have my trade fully learned, and tools in good order, I will obligate myself to make a Boat of 60 Tons burthen for 2000 Dollars, with the engine all compleat for the Voiage, which is much short of what it now costs to carry a Boat of 30 Tons burthen, too and from New Orleans to the Illinois. And this could do four times the business of the other, as it could work double the hours as men at Oars. These are stubborn facts that cannot be controverted, but by men who will not reason in it.

Haveing overcome every difficulty that ocationed doubts to arise, and having done what was never done before, (The world has been worrying against the stream this six thousand years,) but we have exhibited to the World a Vessel going against strong winds and Tides, without sails, or men to labour; the Vessel carrying the Engine, the Engine propelling the Vessel, and all moveing together against the Currents.

Now I presume, if we never carry it to any greater degree of perfection, we have merited a generous reward for laying the foundations for future improvemets. We have by this means introduced Engineers into our Country, and Consequently, one of the first powers of Nature into our Empire, which may be useful in most great works—which alone is sufficient to merit the attention of Congress. But, as I said before, I do not wish

any premiums to make a monopoly to myself,—only to lay it out for the Benefit of my country,—and will wait the Generosity of the Legislatures for further compensation.

My situation is truly this: I have been obliged to support myself in the City of Philad near two years, and have run out the last shilling which I have. Our Company is so numerous, and some of them gave their money purely to encourage the undertaking, without any selfish motives; and some others not being well able to pay thro the scarcity of cash, which brings money in such small sums, I am continually embarrassed; and my demands being so much beyond what we ever expected, I am thrown into the greatest difficulties and distress. These inconceivable disappointments, delays, and expence, has a tendency to relax the good intentions of my Patrons. Although I do not know one that I think would withhold supplies, yet my feelings are so delicate on the matter, had I money of my own, I would compleat it at my own expence sooner than at theirs, as the expence has so far exceeded what I ever expected. But that is not what gives me the most acute distress: *the thoughts of Living on mean and base dependance* destroys my thoughts from being employed where they ought to be; that is, on the execution of my business.

Did it yet remain in a doubt, and Congress must risque their reputation on projects, I would not ask any thing from them; but as long as they can give it for something already done, which has merited their attention, for introducing the improved steam engine, if for nothing more, that I hope they will not look upon my Petition unreasonable. I beg leave, sir, to make some observations more. The certificates and information that I have produced to your house, will undoubtedly raise the value of our Western Territory, in a greater or less degree, more than if the scheme was returned into the Chaos of night, as it was before I suggested the Idea. If I should be instrumental in raising the value of them lands, it is but reasonable that I should have some compensation for it; and be it ever so small, I never shall need it more than at the present time. And should any doubts arise respecting Mr. Rumsey's proposition, be assured that I proved to the Committee of the assembly of Virginia, by the

testimony of Mr. Ed. Penington, General Wood, and Conl. Wills, that my plan was different from Mr. Rumsey's; which Testimonials are now in the hands of the Clerk of the Assembly of Maryland, in order to obtain an exclusive right in that State, as I have done in the State of Virginia, for 14 years. All which observations, tho' suggested without order, the subscriber humbly prays your Excellency, and the Honorable House, will indulge without offence; to whome it is humbly submitted, by

Your Excellency's most Devoted
and very Humble Servant,

JOHN FITCH.

To his Excellency, the President
of Congress.

When this communication was presented, Congress was not full. It was not until the latter end of February, or about the beginning of March, 1788, that nine states were represented. Before any act could be sanctioned, the representatives of nine members of the Confederation were required to vote upon it. This peculiarity of the system was calculated to repress the passage of wholesome laws. If a state was only represented by two persons, the negative of one of those individuals would operate to prevent any vote being recorded as the voice of that particular state. Thus, it might be that a single representative could defeat the desires of eight states, and neutralize the influence which his own constituents might have on the affirmance of important matters. The report of the Committee of Congress was very favorable to the wishes of the petitioner, but he feared to have it pressed to a vote, although he believed that there was a general good feeling among the members for its advancement.

He did not deem it prudent to risk so much on a contingency which a single dissenting vote might ruin. He therefore left New York, and returned to Philadelphia; where the advance of the season required his attention to the steam-boat. This procrastination proved very unfavorable. Rumsey had now made his appearance, claiming to be the original inventor of the steam-boat, and he was distributing widely his pamphlet. This was entitled, "A short treatise on the application of steam; whereby is clearly shewn, from actual experiments, that steam may be applied to propel boats, or vessels of any burthen, against rapid currents, with great velocity. The same principles are also introduced with effect, by a machine of a simple and cheap construction, for the purpose of raising water sufficient for the working of Grist Mills, Saw Mills, &c., and for watering meadows, and other purposes of agriculture. By James Rumsey, of Berkeley County, Virginia. Philadelphia: Printed by Joseph James, Chestnut Street. MDCCLXXXVIII." In this publication Rumsey assumed to be the inventor of the steam-boat, and he pronounced Fitch to be a plagiarist. While the latter was at New York, one of these pamphlets had been given to Colonel Wells, who had hitherto been a warm friend of the Pennsylvanian. His faith in the originality of his claims was at first considerably shaken by the publication, and he received Fitch on his return coldly. The latter was much afflicted at this manifestation, and he resolved to fight Rumsey with a similar weapon. He applied himself assiduously to the pen for three or four days, and he

affidavit of Frederick Tombough, a partner of Mr. Zimmers, coppersmith of Fredericktown, who declared that the copper pipes for Rumsey's steam-boat were made in March, 1786, and not in October or November, 1785. The widow of Zimmers declared that there was no account in her late husband's books to show *when* Rumsey obtained the copper works, but that she knew that Michael Baltzell turned the works for the first machinery. The latter certified that he turned a round piece of wood for Zimmers to round his copper works upon, in March, 1786. Jonathan Morris certified that in March, 1786, he was told that Zimmers had begun some machinery for Rumsey, and he (Morris) called at the coppersmith's shop to see it, but was refused a sight of it, and was told that it was retained "as Mr. Rumsey's secret." John Peters made affidavit that he made the tin work for the engine at the same time that Zimmers was at the copper work, and that it was in March, 1786. John Frymiller, who had been an apprentice of Zimmers, made oath that Rumsey's work was begun in the spring of 1786. Joshua Minshall, a coppersmith of Fredericktown, testified that he knew that it was late in the spring or summer of 1786 before Zimmers commenced the work for Rumsey. Christopher Raborg, of Baltimore, who was engaged to make brass cocks for Rumsey, which he was told were "for the warm springs," said that, not being able to furnish them himself, he got Charles Weir & Co. to complete them. He had no charge by which he could ascertain the time, but believed it to be in the fall of 1785. Rumsey declared that those cocks were not for "the warm springs," but for the steam-boat.

His spirits were very much depressed for a time, so much so that he resorted to the bottle more freely than usual, although he did not indulge to an extent calculated to render him utterly stupid. After giving way to this weakness, his energy of mind returned, and he again determined to apply every faculty to the great work, hoping thereby to vindicate himself in the good opinions of men.

In Rumsey's pamphlet, after stating that he had been experimenting upon steam-engines in secret, and after having informed General Washington by letter of 10th March, that he intended to apply both powers (*viz.*, steam and the pole mechanism), to a boat built after the model at Bath, he says, "I was under many disadvantages arising from my remote situation, and could gain truth only by successive experiments, *incredible delays* were produced, and though my distresses were greatly increased thereby, I bore the peltings of ignorance and ill nature with all resignation, until I was informed some dark assassins had endeavored to wound the reputation of his Excellency and the other gentlemen who saw my exhibition at Bath, for giving me a certificate. The reflections upon these worthy gentlemen gave me inexpressible uneasiness, and I should certainly

and to have all his works completely fitted on Board, about the beginning of Dec^r, and the machinery all taken out & nothing but the boat damaged, I say it was very extraordinary that it should take them the whole years of 1786 and 1787 to *repair the boat* only wher no other repairs were wanting. And it may be also noticed that the attempt of casting cylinders could not be a work of short time. I never could have an attempt made in less than five or six weeks. Yet they are not obliged to be as tedious in Maryland as in our own furnaces about Philadelphia, and as October or November is the first that he attempts to prove any thing about steam engines, and when we make a short allowance for the disappointments of casting cylinders, it may easily be conceived what time they had to bespeak others & get them made & on board by the first of December.

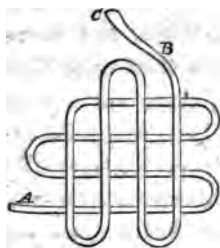
This boat, which grew like Jonah's Gourd the first season, withered down to about one week's work for the two following years, when it may be reasonably supposed that the last part of the time there would be more strenuous exertions, as they knew we were going on and was forward with ours."

have quitted my steam-engines, though in a *great state of forwardness*, and produced the boat for which I obtained their certificate (the pole-boat), for their justification and my own, although I had actually made several experiments on a boat with steam, but Mr. Fitch came out at this minute with his steam-boat, asserting that 'he was the first inventor of steam, and that I had gotten what small knowledge I had from him, but that I had not the essentials.'" He then refers to a letter from Daniel Buckley, living near Philadelphia, to a gentleman residing in Berkeley County, in which, speaking of Dr. McMechen, partner of Rumsey, Mr. Buckley says—"I am sorry he has been deluded by a person who I have reason to believe is a deceiver, as Mr. Fitch, of Philadelphia, says Mr. Rumsey 'got what small knowledge of steam he has of him,'" &c. Rumsey then proceeds to declare in his pamphlet, that as there was no time to lose, he "proceeded with ardour in perfecting the steam-engine, and that it is now so far completed as to render the valuable purpose manifest," etc. It would seem from this, that it was not until after Mr. Buckley's letter was written, that Mr. Rumsey perceived that the critical moment had arrived, and that it was *after* that time that his steam-boat was produced. Now arises the very important question, What was the date of Buckley's letter? It is a curious thing, that no date whatever is given to it in Rumsey's pamphlet, and the reader is evidently expected to understand that the letter was written shortly after the time that Barnes and Morrow say the steam machinery was commenced, viz., in May, 1785. In opposition to this may be noticed the fact that Mr.

solder was then applied, and in July, 1787, the new boiler was ready to work. Morrow also declared that he conceived at the time of his affidavit (Dec. 8, 1787), that the boat was near completion.

Joseph Barnes, who was employed by Rumsey to superintend the manufacture of the machinery, declared that he was engaged for that service in May, 1785. The boat was first built, and Rumsey told him it was to go by steam. He confirmed what Morrow had said relative to his journeys to Baltimore and Fredericktown to get the machinery made, the interference of the ice, the construction of the new boiler, and the employment of the old boiler again. With the latter a trial was made in April, 1786, and the boat went against the current of the Potomac, but many parts being rendered useless, the experiment was then given over. After repairs, another effort was made, but it failed, "though it made many powerful strokes, and sent the boat forward with such power that one man was unable to hold her." In December the new constructed boiler was used, but the soft solder melted. In the spring of 1787 the boat was repaired, and ready for trial in September, when the boat moved up the river against the current, with about two tons on board besides the machinery, at the rate of two miles per hour, but the joints opened and let great quantities of steam escape. At the trial, Dec. 3d, the machine was still imperfect in many parts. Barnes was of opinion that the new constructed boiler was "the greatest thing of that kind extant, as it did not hold more than twenty pints," and in his opinion "would make more steam than a Five hundred gallon boiler in the common way." Its weight

There was another matter of dispute about the pipe boiler, which, by persuasion of Voight and order of the Company, was placed in Fitch's steam-boat in the spring of 1788. Rumsey declared that the whole plan had been taken from him, and that it was in the essentials similar to his own. To this Fitch replied, that such a boiler was originally devised by himself, and described in his papers laid before the Philosophical Society in September, 1785. In proof of that fact, he exhibited a certificate of Dr. John Ewing, dated Sept. 27, 1785, stating that in Fitch's explanation of his draft he revealed that "his intention of conveying the waters from his forcing pump in a Tube that passed through the fire was, that it might thereby be set a boiling before it entered the Receiver, lest the cold water mixing with the boiling water in the Receiver should impede the generation of steam."¹



Section of Pipe Boiler.

Upon this boiler Voight improved, but being fearful of risking their success upon a theory, they thought it best to use the boiler of the old plan.

The affidavits of Timothy Matlack and John Nancarrow also established this point. Matlack declared that Henry Voight had shown him the draft of a spiral tube for generating steam for his

¹ The following references to the drawing of this pipe-boiler (Rumsey's) are given in an essay signed "Retrograde," in the possession of the American Philosophical Society:

A, B, C, an iron pipe bent as represented by the figer.

D, F, a pipe of the same size with the valve E on the turned up end. The end F is braized to the boiler A, B, C, at B, and

plan I mean to pursue is to put *both the machines* on board of boats built on a large scale;¹ and then, sir, if you would be kind enough to see them make actual performances, I should not doubt but that the Assemblies would allow me something handsome; which would be the more advantageous to the public than to give me the exclusive right of using them."

To this letter it is averred that General Washington made this reply :

"It gives me much pleasure to find by your letter that you are not less sanguine in your boat project than when I saw you in Richmond; and that you have made such further discoveries as will render them more extensively useful than was at first expected. You have my best wishes for the success of your plan."

Major-General Horatio Gates, Rev. Robert Stubbs, teacher of the Academy in Sheperdstown, Abraham Shepherd, William Brice, David Gray, John Morrow, Henry Bedinger, Thomas White, and Charles Morrow certified that they saw Rumsey's boat move against the current of the Potomac on the 3d of December, 1787, with two tons on board, exclusive of the machinery, at the rate of three miles an hour, by the force of steam, without any external application whatever.

Moses Hage, Cornelius Wynkoop, John Mark, Benoni Swearingen, John Morrow, Joseph Swearingen, Charles Morrow, Thomas White, Robert Stubbs, Abraham Shepherd, and Henry Bedinger testified that

¹ Two boats were connected in Rumsey's model of September, 1784 (the pole-boat), and he was of opinion that the experiment would not succeed on that principle with a single boat. This is the substance of a note in the pamphlet.

thought that the best way of applying fire for evaporation into steam, must be also the best way of applying cold water to condense steam, that is by bringing the greatest quantity of fire into action upon the greatest surface of water—or the contrary. It is clear that Fitch first suggested the pipe boiler, but Voight having materially improved it, his partner relinquished his rights in it to him. Speaking of Rumsey's claim to that invention, Fitch said—"Whether I have got his mode of creating steam, or whether he has got mine, I do not at present know. But as both Mr. Rumsey and Mr. Voight laid their plans before the Philosophical Society the same day, it will appear how far they are alike."

In reference to this matter, it appears from the minutes of the American Philosophical Society that on the 5th of April, 1788, Rumsey's pamphlet was presented. On the 18th of the same month "a letter signed X. Y., with a draft, model, and explanation of an improved boiler for steam-engines," was laid before the Society, as a candidate for the Magellanic premium. The regulations concerning the manner in which this prize was to be awarded, required that the communication should be marked with a signature or motto, and that it should be accompanied by a sealed package containing the name of the author, which was not to be opened but in case of the success of the essay. On the same evening "a letter was received from Mr. James Rumsey, of the State of Virginia, accompanied with a drawing and description of an improved boiler, for a steam-engine;" also drawings and descriptions of improvements on grist-mills, saw-mills, and pumps.

William Askew testified that he was in Philadelphia in September, 1787, and saw Fitch's boat, and was of opinion that the boiler would hold five hundred gallons of water; that the machinery would weigh seven tons,

means of the belt, G, which connects both of the pistons, F, F.

DD, a box, to which the lower cylinder is firmly fastened; which box is seen open, for the advantage of representing the valves, c, c, c.

E, a valve on the top of the trunk, near the box, DD, to admit air, which follows the water that is put in motion by the strokes of the engine, and lets it pass off freely, while the water rises gradually into the trunk through the valves, C, C, at its bottom, and is then ready to resist the next stroke of the engine.

F H, the upper cylinder of the steam engine.

F G, the lower cylinder.

H, a rod, screwed on to the top of the bolt, G; which rod communicates with the apparatus for opening and shutting the cock, K. This apparatus it is not thought necessary to represent.

I, a swelled cup in the pipe, thro which water is thrown by every stroke of the engine into the upper cylinder, upon the piston, F.

K, a cock at the junction of the pipes, communicating from the boiler with the cylinder and condenser, which admits the steam under the piston of the upper cylinder. The piston is then carried up, and, by the communication of the rod, H, with the cock, K, changes the operation, and passes off the steam for condensation into the condensing vessel, N. The atmosphere then forces down the piston, as it is represented in the plate; by which means the water is forced through the trunk, B.

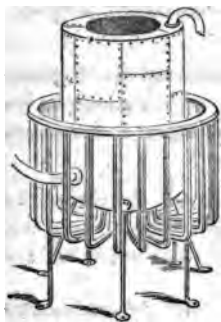
L, a puppet valve, communicating with the boiler, and acting as a regulator; and must be weighted, to determine the requisite pressure.

M, the furnace, in which the pipe boiler is to be placed.

O, the gauge cock and spiral worm, connecting the forcing pump, P, and the air vessel, R, with the boiler.

a, a valve, which admits the water to rise into the barrel of

sideration at the meeting in December, 1789, and again in 1790. In the latter year, "X. Y. presented



Double Cylinder Boiler, Grate, and Furnace. (Henry Voight's.)

a supplementary and explanatory paper to the piece presented in the month of April, 1788, on the subject of an improved boiler for steam-engines, together with a tin model." Afterwards it was reported that both "X. Y." and "Retrograde" were inadmissible, in consequence of a noncompliance with prescribed rules.

It will therefore be seen that both Voight and Rumsey openly laid their plans of boilers before the Society on the same evening. Both at the same time sought the award of the Magellanic Gold Medal, in communications signed "X. Y." and "Retrograde."

The essay of "Retrograde" remains with the Society; but that of "X. Y." has disappeared. We are enabled to make up the deficiency partly by an extract from the *Columbian Magazine* for 1789, page 602. It contains a report of the proceedings of the Society, as follows:

"April 18, 1788.—Presented, a model drawing and description of an improved boiler for steam engines, from a candidate for the annual premium, under the signature X. Y.

"This boiler is in the form of a double cylinder, or one cylinder enclosed in another, leaving a space between the inner surface of the one and the outer surface of the other of about two inches, in which the water is contained; the cylinders being joined together at both ends. Through the outer cylinder are

weighed five tons, whilst Rumsey's weighed but five hundred pounds.

Before noticing "the Original steamboat supported," let us again present a few dates, previously given in this biography, in order to make the important question of *time* more easily understood :

- 1785. April, Jno. Fitch conceived the idea of a steamboat.
- " Aug. 20, Letter in favour of his scheme by Dr. John Ewing.
- " " 25, Letter in favour of his scheme by Wm. C. Houston.
- " " 27, Letter in favour of his scheme by Samuel Smith.
- " " 29, Petition of Fitch presented to Congress.
- " Sept. 27, Drawing of the boat, models, and tube boiler presented to the American Philosophical Society by John Fitch.
- " Dec. 2, Dr. Franklin lays before the Am. Philos. Society a paper on maritime affairs, suggesting an improvement on Bernouilli's plan of propelling a boat by sucking in and voiding water.
- " Nov., Application made by Fitch to the Legislature of Virginia for encouragement.
- " " 16, Bond executed to Gov. Patrick Henry, conditioned for the sale of maps, to raise funds to build a steamboat.
- " " 25, Ex-Gov. Thomas Johnson gives Jno. Fitch a letter of recommendation to Gov. Smallwood, of Maryland, in favour of his application for a law to give him encouragement in the building of his steamboat.
- " Dec., Petition presented to the Assembly of Pennsylvania, for assistance. Committee reported favorably, but no action taken.

through and among them, caused a speedy creation of steam. This was the first tubular boiler known to have been used in any part of the world. The "improved boiler," the plan of which was laid before the Society, was upon the same principle, viz. : the exposure of a surface of a small quantity of water to the action of the fire. The double cylinder was a tube surrounding a tube. The heat applied to the outer and inner surfaces created steam quickly. The idea of employing a wooden furnace to enclose the whole, even although coated with Cavendish's anti-combustion composition, will excite a smile at this day.

But let us return to the Battle of the Pamphlets. "The Original steamboat supported" was certainly a very conclusive publication; and it placed the claim of Rumsey, that he had propelled a steamboat before Fitch had done so, in a very doubtful situation. It proved very conclusively that if the witnesses relied upon by the Pennsylvanian were truthful, there *had* been an ingenious system of "false datings" in the pamphlet of the Virginian.

The agents of the latter did not rest quiet, but brought out, towards the close of the year, an answer, which was entitled "Remarks on Mr. John Fitch's reply to Mr. James Rumsey's pamphlet, by Joseph Barnes, formerly assistant, and now attorney in fact to James Rumsey. Philadelphia: Printed by Joseph James, Chestnut street. MDCCLXXXVIII." In this publication, Barnes applied himself assiduously to sustain the statements made by his principal.

Morrow was the chief witness who fixed any time in 1785 as that when the machinery was all on board

1786. Nov. 2, Another petition to the Assembly of Pennsylvania, for an exclusive right in the steamboat.
- " Dec., Drawing and description of Fitch's steamboat published in the *Columbian Magazine*.
- " " 28, Arthur Donaldson protests against the passage of a law in favour of Fitch.
1787. March, Reply of Fitch, and argument against Donaldson.
- " " 28, Bill giving exclusive rights in the steamboat to John Fitch passed, finally, in Pennsylvania.
- " Feb. 3, Law securing exclusive Rights to Fitch passed by the state of Delaware.
- " " 24, Memorial to the Legislature of New York.
- " " 27, Favorable report, and the law securing the rights of Fitch reported.
- " March 19, Law of New York passed.
- " Aug. 22, The new steamboat tried on the Delaware, [cylinder 12 inches,] and the experiment witnessed by nearly all the members of the Convention to form the Constitution of the U. S. Certificate by Dr. Johnson, of Virginia, David Rittenhouse, John Ewing, and Andrew Ellicott.
- " Oct., Fitch's company first informed that James Rumsey, of Virginia, claimed to be inventor of a steamboat.
- " Nov. 7, Law in favour of Fitch passed by the state of Virginia.
- " " " Petition to the Assembly of Maryland for a law, by John Fitch.
1788. Feb., Petition to Congress for a grant of land, to aid in the construction of the boat.
- " March, Rumsey's pamphlet first circulated in Philadelphia.

cocks for Raborg, and delivered them October 15, 1785, having since found a receipt which enabled him to specify the time. Causten (or Cursten) stated that the four brass cocks made for Raborg in March, 1786, which he spoke of in the affidavit furnished by him to Fitch, could not have been the same that were made for Rumsey, which he was persuaded were finished by October 14, 1785. No retraction was obtained from Tombough, Peters, Baltzell, Morris, Minshall, or Frymiller. So that, of the ten who originally testified that the machinery of Rumsey's boat was made by Zimmers & Raborg in 1786, six persons still maintained their original allegations. Beside that, Barnes himself furnished evidence that the boiler could not have been finished in December, 1785. This was contained in affidavits and statements by John Ritchie, Michael Entler, and Jonathan Osborn, that they prepared and welded barrels, or "scalps," for the boiler, in January and February, 1786. William Askew testified that in Philadelphia, in September, 1787, he had communicated to Voight that Rumsey had been making experiments, and that in January, 1788, he informed Voight of the principles of the pipe-boiler, of which the latter professed to have never heard, and the utility of which he doubted. In the written part of the pamphlet, Barnes admitted that work had been made for Rumsey by Zimmers in March, 1786, as was alleged in Fitch's statement; but it was declared that those articles belonged to a *second* engine. In regard to the equivocal position of Governor Johnson, it was argued that, as he was aware that Fitch's plan of a steam-boat differed from Rumsey's, he thought it his duty to en-

taken that the time at which Rumsey's steam-boat experiments were represented to have taken place was antedated; that, having failed in the pole-boat, Rumsey attempted to deceive the public by assertions that the favorable certificates of the performances of *that* machine were given to the steam-boat. The question as to who first *thought* of the steam-boat, was not contested by Fitch. He admitted that General Washington told him, in November or December, 1785, that Rumsey had *spoken* of steam, but that he (General Washington) did not think that he placed any very great reliance upon it as a moving power.¹ The controversy between these parties seemed to be most bitterly fought upon the question, Who made the first experiments? The Pennsylvanian did not scruple to assert that the Virginian never determined to employ that subtle agent, steam, until the pole-boat failed, and until the experiments upon the Delaware were notorious throughout the country. He commenced by giving an historical account of his own proceedings, with the

¹ This is manifest by the *after-discovered evidence* given in Sparks' Life of Washington (see note to page 142), in the letters of General Washington to Hugh Williamson, March 15, 1785, and to James Rumsey, January 1, 1786; in both of which the writer speaks only of "a mechanical boat." The latter is the more remarkable, as it was written a month or two after Fitch's visit to Washington—fourteen months after Rumsey claims that he communicated his idea of a steam-boat to the General, and nine months after the letter alleged to have been written by Rumsey about his boat that could be propelled in the Gulf Stream, etc. Notwithstanding these representations, and although a *steam-boat* inventor had visited Washington a month before, nothing is said about Rumsey's *steam-boat*; but General Washington calls his invention "a *mechanical boat*."

ter, and Barnes was then adding a piece to make it wider. Rumsey said that he had tried the *stream boat*, [pole-boat,] and when he found that it would not answer the desired purpose, had determined to use steam.

Benjamin Harris declared that he had worked for Rumsey in the spring of 1786 for one month; that in the fall of the same year he saw the boat worked up the river with *setting-poles*, near the shore. He saw in it "a wheel nearly similar to the flutter-wheel of a saw-mill." There was a smaller wheel at the bow, "about the size of a wheelbarrow wheel, and others, with considerable other machinery." These articles belonged to the pole or stream-boat; there was nothing like flutter-wheels in Rumsey's steam-boat, which was propelled altogether by a pumping apparatus.

John Eremere made oath that he helped to take Rumsey's machinery on board his boat in May, 1786. As far as recollected, it consisted of two pipes of copper, five and a half feet long and six inches in diameter, a large boiler of copper, a large fan-wheel, with a spindle through both crosses at the ends, two long pieces of iron, eight or nine feet, and shaped similar to a soldier's cutlass [supposed to be setting-poles], a number of paddles, or small boards [for the stream-wheel]. There was no trunk or double bottom. The hold was clear all the way from stem to stern, like that of any other boat, and no steam boiler was in it.

Leonard Smith testified that he steered Rumsey's boat in May or June, 1786, when it was tried with different ways of working—among others, with setting-poles. Other machinery was put on board afterward, and the boat went up the river. It had flutter-wheels

proof that there was really no interference. Rumsey's pamphlet, page 4, furnished an additional argument by the incautious confession, "I find my idea of steam was *nearly matured* before steam had entered his [Fitch's] imagination, by his confession to Governor Johnson :'' viz., in April, 1785. "This is a proof," says Fitch, "that when he obtained these laws, his idea of steam was not *matured*."

The application by Rumsey to Gov. Johnson for castings for a steam-engine in October or November, 1785, was alleged to be a misstatement; and it was declared that the engine said to have been completed at Fredericktown in December, 1785, was not begun until March, 1786. The statement of Gov. Johnson, of Maryland, made Dec. 18th, 1787, to the above effect, was controverted, and it was asserted that either "his memory or his candor was at fault." Fitch asks very pertinently, how the Governor could have written the favorable letter recommending his steam-boat, which bears date Nov. 25th, 1785 (see page 144), when, according to Rumsey's statement, *his* steam-boat was within six days of completion. Gov. J. attempted to reconcile this discrepancy in his letter to Rumsey, by saying that he felt himself bound to keep the fact that the latter intended to rely upon steam "*a secret*." He says that he kept it a secret after the application to him to cast a cylinder [Oct., 1785], until he found that the cylinder cast at Fredericktown "was a subject of pretty general conversation." Now, if the entire steam-engine was finished by the 1st of December, 1785, the cylinder must have been completed before Fitch visited Gov. Johnson [Nov. 25th], and the obligation to se-

cresy was already removed, because the matter was generally known. How, then, could the Governor give Fitch the letter of recommendation of that date, which was written at Fredericktown, where this "pretty general conversation" was occurring? In that epistle he calls him "a man of real genius and modesty." If Fitch had then come forward with a second-hand idea, the commendation of his genius would have been absurd. Governor Johnson also said that Fitch intended to force vessels by steam "through any kind of water," a phrase believed to be employed to distinguish the power from that used in Rumsey's pole-boat, which could only go *against* streams. How, too, could Gov. Johnson, as an honest man, recommend Fitch warmly to the attention of Gov. Smallwood, if he knew that *his* steam boat conflicted altogether with Rumsey's steam-boat? From these difficulties there seems no escape, but by the conclusion that in 1785 Gov. J. was either acting hypocritically to Fitch and false to Rumsey, or that in 1787, through a loss of memory, or an over-anxiety to aid his friend, he made misstatements.

In regard to Joseph Barnes and Charles Morrow, the only persons who assign to Rumsey's experiments a period anterior to the time of Fitch's trials, the ground was boldly taken that both were perjured and interested witnesses, both being partners of Rumsey. These persons differed: Barnes declaring that all the works were on board the boat in Dec. 1785, and Morrow stating that although ready at the time, the engine was not set up until March, 1786, when the first experiment was made.

In order to sustain his positions, Fitch produced the

affidavit of Frederick Tombough, a partner of Mr. Zimmers, coppersmith of Fredericktown, who declared that the copper pipes for Rumsey's steam-boat were made in March, 1786, and not in October or November, 1785. The widow of Zimmers declared that there was no account in her late husband's books to show *when* Rumsey obtained the copper works, but that she knew that Michael Baltzell turned the works for the first machinery. The latter certified that he turned a round piece of wood for Zimmers to round his copper works upon, in March, 1786. Jonathan Morris certified that in March, 1786, he was told that Zimmers had begun some machinery for Rumsey, and he (Morris) called at the coppersmith's shop to see it, but was refused a sight of it, and was told that it was retained "as Mr. Rumsey's secret." John Peters made affidavit that he made the tin work for the engine at the same time that Zimmers was at the copper work, and that it was in March, 1786. John Frymiller, who had been an apprentice of Zimmers, made oath that Rumsey's work was begun in the spring of 1786. Joshua Minshall, a coppersmith of Fredericktown, testified that he knew that it was late in the spring or summer of 1786 before Zimmers commenced the work for Rumsey. Christopher Raborg, of Baltimore, who was engaged to make brass cocks for Rumsey, which he was told were "for the warm springs," said that, not being able to furnish them himself, he got Charles Weir & Co. to complete them. He had no charge by which he could ascertain the time, but believed it to be in the fall of 1785. Rumsey declared that those cocks were not for "the warm springs," but for the steam-boat.

This latter statement was contradicted by Charles Weir and Isaac Causten, who composed the firm of Chas. Weir & Co. Weir stated that, from his memory, he believed it to be in the spring of 1786 that he did that work. Causten declared that the books of the firm had been destroyed by fire, but that from some loose papers in his possession he found that four brass cocks were charged to Raborg, on the 29th of March, 1786. Thus it will be perceived, that opposed to the statement of Morrow and Barnes, that the steam-engine was ready by December, 1785, were the certificates and affidavits of nine persons, all of whom declared that the machinery was not begun until March, 1786, or seven months after Fitch had applied to Congress, and had spread the news of his discovery through Pennsylvania, Virginia, and Maryland. The testimony thus adduced was relied upon to show that instead of Rumsey's boat being completed in December, 1785, and tested in 1786, the steam machinery was not ready until December, 1786, and the boat was not tried until December, 1787, more than sixteen months after Fitch's skiff steam-boat was propelled on the Delaware, and three months after the successful experiment with the larger boat, which was witnessed by the members of the Federal Convention.¹

¹ In reference to these important points, Fitch afterwards, in his letter to the commissioners for granting patents in 1791, uses the following very pertinent and forcible argument:

"Now that he should be so expeditious as to make his pole boat, & try its ineffectual experiments from the 25 March, 1785, & then to change his plan to a steamboat, & bespeak none of his works before October or November, and the first works which he bespoke to fail in the attempt, & afterwards to bespeak others

In Rumsey's pamphlet, after stating that he had been experimenting upon steam-engines in secret, and after having informed General Washington by letter of 10th March, that he intended to apply both powers (*viz.*, steam and the pole mechanism), to a boat built after the model at Bath, he says, "I was under many disadvantages arising from my remote situation, and could gain truth only by successive experiments, *incredible delays* were produced, and though my distresses were greatly increased thereby, I bore the peltings of ignorance and ill nature with all resignation, until I was informed some dark assassins had endeavored to wound the reputation of his Excellency and the other gentlemen who saw my exhibition at Bath, for giving me a certificate. The reflections upon these worthy gentlemen gave me inexpressible uneasiness, and I should certainly

and to have all his works completely fitted on Board, about the beginning of Dec^r, and the machinery all taken out & nothing but the boat damaged, I say it was very extraordinary that it should take them the whole years of 1786 and 1787 to *repair the boat* only wher no other repairs were wanting. And it may be also noticed that the attempt of casting cylinders could not be a work of short time. I never could have an attempt made in less than five or six weeks. Yet they are not obliged to be as tedious in Maryland as in our own furnaces about Philadelphia, and as October or November is the first that he attempts to prove any thing about steam engines, and when we make a short allowance for the disappointments of casting cylinders, it may easily be conceived what time they had to bespeak others & get them made & on board by the first of December.

This boat, which grew like Jonah's Gourd the first season, withered down to about one week's work for the two following years, when it may be reasonably supposed that the last part of the time there would be more strenuous exertions, as they knew we were going on and was forward with ours."

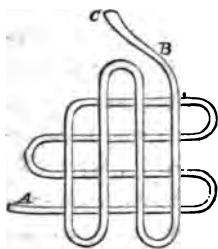
have quitted my steam-engines, though in a *great state of forwardness*, and produced the boat for which I obtained their certificate (the pole-boat), for their justification and my own, although I had actually made several experiments on a boat with steam, but Mr. Fitch came out at this minute with his steam-boat, asserting that 'he was the first inventor of steam, and that I had gotten what small knowledge I had from him, but that I had not the essentials.'" He then refers to a letter from Daniel Buckley, living near Philadelphia, to a gentleman residing in Berkeley County, in which, speaking of Dr. McMechen, partner of Rumsey, Mr. Buckley says—"I am sorry he has been deluded by a person who I have reason to believe is a deceiver, as Mr. Fitch, of Philadelphia, says Mr. Rumsey 'got what small knowledge of steam he has of him,'" &c. Rumsey then proceeds to declare in his pamphlet, that as there was no time to lose, he "proceeded with ardour in perfecting the steam-engine, and that it is now so far completed as to render the valuable purpose manifest," etc. It would seem from this, that it was not until after Mr. Buckley's letter was written, that Mr. Rumsey perceived that the critical moment had arrived, and that it was *after* that time that his steam-boat was produced. Now arises the very important question, What was the date of Buckley's letter? It is a curious thing, that no date whatever is given to it in Rumsey's pamphlet, and the reader is evidently expected to understand that the letter was written shortly after the time that Barnes and Morrow say the steam machinery was commenced, viz., in May, 1785. In opposition to this may be noticed the fact that Mr.

Buckley speaks of "Mr. Fitch, of Philadelphia." It has been already shown that his residence was in Bucks County during the whole of 1785, and it was not until the formation of the steam-boat company in April, 1786, that he became an inhabitant of the city. Added to this is the certificate of Mr. Daniel Buckley, in "The Original steamboat supported," that he does not know from his memory the date of the letter written to Virginia, to which Rumsey refers, but it was "when Mr. Samuel Briggs was making patterns for Mr. Fitch's castings." The affidavit of Briggs stated that the first patterns for castings made by him for Fitch was in the summer of 1786, and that Daniel Buckley was in his shop several times during that summer, so that the "critical moment" when Mr. Rumsey found it necessary for him to go on with his steam-boat, must have been in 1786, and not 1785, and consequently the vessel could not have been tried until 1787.

In addition to these arguments, there was a statement by Fitch that the winter of 1785 was mild and open, and that there could have been no ice in the Potomac to interfere with Rumsey's experiments, but that in the month of December, 1786, the weather was precisely such as would have stopped the navigation of the river.¹

¹ On the same subject he said in his communication to the Commissioners for Granting Patents, which was written in 1790, "I went to Annapolis and back in the month of January, 1786, and was not impeded with ice going or returning, nor did I see any which I beleive was an inch thick on any of the rivers. From these circumstances and other proofs I have to offer, it appears to me very probable that they have made a mistake of one year." This journey occupied twenty days.

There was another matter of dispute about the pipe boiler, which, by persuasion of Voight and order of the Company, was placed in Fitch's steam-boat in the spring of 1788. Rumsey declared that the whole plan had been taken from him, and that it was in the essentials similar to his own. To this Fitch replied, that such a boiler was originally devised by himself, and described in his papers laid before the Philosophical Society in September, 1785. In proof of that fact, he exhibited a certificate of Dr. John Ewing, dated Sept. 27, 1785, stating that in Fitch's explanation of his draft he revealed that "his intention of conveying the waters from his forcing pump in a Tube that passed through the fire was, that it might thereby be set a boiling before it entered the Receiver, lest the cold water mixing with the boiling water in the Receiver should impede the generation of steam."¹



Section of Pipe Boiler.

Upon this boiler Voight improved, but being fearful of risking their success upon a theory, they thought it best to use the boiler of the old plan.

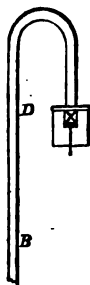
The affidavits of Timothy Matlack and John Nancarrow also established this point. Matlack declared that Henry Voight had shown him the draft of a spiral tube for generating steam for his

¹ The following references to the drawing of this pipe-boiler (Rumsey's) are given in an essay signed "Retrograde," in the possession of the American Philosophical Society:

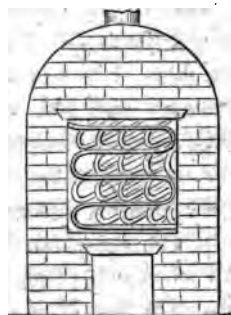
A, B, C, an iron pipe bent as represented by the figer.

D, F, a pipe of the same size with the valve E on the turned up end. The end F is braised to the boiler A, B, C, at B, and

steam-boat in the latter part of June, 1786. Nancarrow, who was present, was consulted about it. He advised Voight to use the common grate boiler, and not to trust to uncertain experiments. This advice was taken at first, but on the day the affidavits were made, July 14, 1788, both Matlack and Nancarrow inspected the pipe boiler, then set up in Fitch's steam-boat, and found it to be the same in principle as that shown them



Section of Pipe Boiler.



In its Furnace.

in 1786. Voight also suggested the same principles, *viz.*, a spiral pipe or worm for a condenser. It was

hangs down in a perpendicular direction to discharge the steam at the valve E when the machine is not at work. This boiler is set up in a furnace of Brick and the fuel put into the cavetays formed by the crossings of the pipe. The water that makes the steam is forced in at the end A by a small pump.

The advantage of this boiler is, that it presents a much greater surface to a small fire than any other. The furnace is two feet square inside. 120 feet of pipe, two inches in diameter, is bent as represented in the diagram, the surface of which will be 60 feet square, all of which will be in the fire, as the fuel is to be burnt in the cave made by the crossing of the pipe, and must therefore be very hot.

thought that the best way of applying fire for evaporation into steam, must be also the best way of applying cold water to condense steam, that is by bringing the greatest quantity of fire into action upon the greatest surface of water—or the contrary. It is clear that Fitch first suggested the pipe boiler, but Voight having materially improved it, his partner relinquished his rights in it to him. Speaking of Rumsey's claim to that invention, Fitch said—"Whether I have got his mode of creating steam, or whether he has got mine, I do not at present know. But as both Mr. Rumsey and Mr. Voight laid their plans before the Philosophical Society the same day, it will appear how far they are alike."

In reference to this matter, it appears from the minutes of the American Philosophical Society that on the 5th of April, 1788, Rumsey's pamphlet was presented. On the 18th of the same month "a letter signed X. Y., with a draft, model, and explanation of an improved boiler for steam-engines," was laid before the Society, as a candidate for the Magellanic premium. The regulations concerning the manner in which this prize was to be awarded, required that the communication should be marked with a signature or motto, and that it should be accompanied by a sealed package containing the name of the author, which was not to be opened but in case of the success of the essay. On the same evening "a letter was received from Mr. James Rumsey, of the State of Virginia, accompanied with a drawing and description of an improved boiler, for a steam-engine;" also drawings and descriptions of improvements on grist-mills, saw-mills, and pumps.

On the same evening "a letter was received with drawings and descriptions of various improvements in Boilers for generating steam, from Mr. Henry Voight."

Ordered, that Dr. Ewing, Mr. Rittenhouse, and Mr. Professor Patterson, be a Committee to examine the several papers on the production and use of steam, and to make report to the society thereon.

May 2, 1788. — A letter, with a drawing and description for an improved boiler for Steam Engines, was received from a candidate for the Annual Premium, under the signature of "Retrograde."

A report from the Committee to whom were referred sundry papers by the Society at their last meeting, was produced and read, as follows: viz.,

"Your Committee have examined the several papers to them referred by the Society at their last meeting, except that offered for the Annual premium; on which they do not think it proper to give their opinion at present.

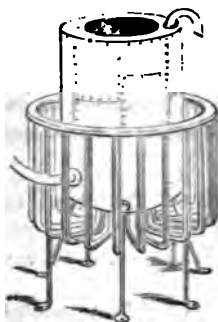
"The principle which Mr. Rumsey and Mr. Voight seem to have adopted in their proposed Boilers — to wit, to increase the surface, and to diminish the quantity of water exposed to the action of the fire, appears to your Committee in general to be just. But what must be the best application of this principle, must no doubt in some measure be determined by actual experiments.

"The improvements w^{ch} Mr. Rumsey proposes in Dr. Barker's Grist mill, that in the saw mill, and that in the raising of water by means of a steam engine, are certainly ingenious in theory, and well deserve a full trial.

JOHN EWING,
DAVID RITTENHOUSE,
ROBERT PATTERSON.

The essays of "Retrograde" and "X. Y." remained on hand for two years. They were laid over for con-

sideration at the meeting in December, 1789, and again in 1790. In the latter year, "X. Y. presented



Double Cylinder Boiler, Grate, and Furnace. (Henry Voight's.)

a supplementary and explanatory paper to the piece presented in the month of April, 1788, on the subject of an improved boiler for steam-engines, together with a tin model." Afterwards it was reported that 'both "X. Y." and "Retrograde" were inadmissible, in consequence of a noncompliance with prescribed rules.

It will therefore be seen that both Voight and Rumsey openly laid their plans of boilers before the Society on the same evening. Both at the same time sought the award of the Magellanic Gold Medal, in communications signed "X. Y." and "Retrograde."

The essay of "Retrograde" remains with the Society; but that of "X. Y." has disappeared. We are enabled to make up the deficiency partly by an extract from the Columbian Magazine for 1789, page 602. It contains a report of the proceedings of the Society, as follows:

"April 18, 1788. — Presented, a model drawing and description of an improved boiler for steam engines, from a candidate for the annual premium, under the signature X. Y.

"This boiler is in the form of a double cylinder, or one cylinder enclosed in another, leaving a space between the inner surface of the one and the outer surface of the other of about two inches, in which the water is contained; the cylinders being joined together at both ends. Through the outer cylinder are

made two holes (the one near the top, the other near the bottom), into which are fastened two tubes; through the one the boiler is supplied with water, and through the other the steam is conveyed to whatever place it may be wanted. The boiler is surrounded, both on the concave and convex surfaces, by a double cylindrical grate; (a proper space being left between it and the boiler,) into which the fuel is to be put. This grate (with the boiler enclosed in it) is supported by three strong iron feet, and the whole surrounded by a cylindrical furnace, terminating in a funnel, or large pipe, above the boiler. This furnace is proposed to be formed of light wooden studs, joined together by laths, and plastered on the inside with the composition and in the manner which Lord Cavendish recommends to prevent houses from burning. Such a furnace it is presumed would have considerable advantages over one made of iron or brick. It would be incomparably lighter, and less expensive; and besides, being a worse conductor of heat, it would more effectually prevent an unnecessary waste of it, while at the same time it would be less incommodious to the workmen who attend it."

In the same magazine, page 674, is an account of the proceedings of the American Philosophical Society, under the date of May 2, 1788. The presentation of a communication under the signature "Retrograde" is noticed, and it is added, "this is precisely the same with Mr. Rumsey's pipe-boiler, mentioned on the same page." "X. Y." was the signature, therefore, of Henry Voight; "Retrograde," of James Rumsey.

The double-cylinder boiler of Voight was an improvement, it was thought, upon the pipe boiler of John Fitch. The latter was simply a collection of pipes, united at the end and bent together in a small space, crossing each other like the worm of a still. About two hundred feet were thus brought together; and the fire being around them, and the flames ascending

through and among them, caused a speedy creation of steam. This was the first tubular boiler known to have been used in any part of the world. The "improved boiler," the plan of which was laid before the Society, was upon the same principle, viz. : the exposure of a surface of a small quantity of water to the action of the fire. The double cylinder was a tube surrounding a tube. The heat applied to the outer and inner surfaces created steam quickly. The idea of employing a wooden furnace to enclose the whole, even although coated with Cavendish's anti-combustion composition, will excite a smile at this day.

But let us return to the Battle of the Pamphlets. "The Original steamboat supported" was certainly a very conclusive publication; and it placed the claim of Rumsey, that he had propelled a steamboat before Fitch had done so, in a very doubtful situation. It proved very conclusively that if the witnesses relied upon by the Pennsylvanian were truthful, there *had* been an ingenious system of "false datings" in the pamphlet of the Virginian.

The agents of the latter did not rest quiet, but brought out, towards the close of the year, an answer, which was entitled "Remarks on Mr. John Fitch's reply to Mr. James Rumsey's pamphlet, by Joseph Barnes, formerly assistant, and now attorney in fact to James Rumsey. Philadelphia: Printed by Joseph James, Chestnut street. MDCCLXXXVIII." In this publication, Barnes applied himself assiduously to sustain the statements made by his principal.

Morrow was the chief witness who fixed any time in 1785 as that when the machinery was all on board

Rumsey's steamboat; and in his first affidavit he declared that it was ready by December, when the ice prevented the boat from being tried. He now reiterated that statement, and declared that £9 16s were paid Raborg for the four brass cocks, on the 29th of October, 1785. Conrad Byers made oath that in October or November, 1785, he put hands on two brass or copper cocks for Rumsey, some springs for opening and shutting them, two pistons, and some flanches; and that he understood that they were for the steamboat. Francis Hamilton declared that in December, 1785, Barnes and James McMechen brought a boat of about six tons burthen, with a variety of machinery on board, to the Shenandoah Falls; that there were copper cylinders, or copper boilers, copper cocks, pumps, etc.; that they continued fixing the machinery until January 7, 1786, when, the ice driving in the river, they desisted, drew the boat up, took out the machinery, and laid it in his (Hamilton's) cellar; that on the 14th of March, 1786, a trial was made, when the boat moved against the current, though not with much success, owing to the imperfections of the machinery, he, the said Hamilton, with Barnes, McMechen, and Morrow, being on board. Mrs. Zimmers now declared that it was in November, 1785, that her husband made "two round copper things" for Rumsey, and that they were finished and taken away before Christmas of the same year; and that she recollected that certain brass cocks were fixed to them. Christopher Raborg also changed his statement, and said that Weir & Co. made the brass cocks for him in the fall of 1785. Weir, too, declared that he had made the

cocks for Raborg, and delivered them October 15, 1785, having since found a receipt which enabled him to specify the time. Causten (or Cursten) stated that the four brass cocks made for Raborg in March, 1786, which he spoke of in the affidavit furnished by him to Fitch, could not have been the same that were made for Rumsey, which he was persuaded were finished by October 14, 1785. No retraction was obtained from Tombough, Peters, Bultzell, Morris, Minshall, or Frymiller. So that, of the ten who originally testified that the machinery of Rumsey's boat was made by Zimmers & Raborg in 1786, six persons still maintained their original allegations. Beside that, Barnes himself furnished evidence that the boiler could not have been finished in December, 1785. This was contained in affidavits and statements by John Ritchie, Michael Entler, and Jonathan Osborn, that they prepared and welded barrels, or "scalps," for the boiler, in January and February, 1786. William Askew testified that in Philadelphia, in September, 1787, he had communicated to Voight that Rumsey had been making experiments, and that in January, 1788, he informed Voight of the principles of the pipe-boiler, of which the latter professed to have never heard, and the utility of which he doubted. In the written part of the pamphlet, Barnes admitted that work had been made for Rumsey by Zimmers in March, 1786, as was alleged in Fitch's statement; but it was declared that those articles belonged to a *second* engine. In regard to the equivocal position of Governor Johnson, it was argued that, as he was aware that Fitch's plan of a steam-boat differed from Rumsey's, he thought it his duty to en-

courage both. The statements alleged to have been made in a letter of Rumsey to Washington, March 10, 1785, that the newly invented plan of propulsion would make boats go against the current of the Mississippi or Ohio, and in the Gulf Stream, it was said must have alluded to a steam-boat, as the pole-boat could not have made such performance. There was also a certificate of John Wilson, of Philadelphia, that Rumsey had told him, in 1783, that he intended to build a boat, to go by steam; and one of like character from Moses Hunter, certifying to a conversation held in 1784.

To rebut these allegations, new affidavits and certificates were procured by Fitch, and published in a broadside or handbill form. These statements confirmed very conclusively the original argument, that the dates of Rumsey's steam experiments had been placed at earlier periods than when they really occurred. The great point in contest was, whether the steam machinery of Rumsey was all finished and on board the boat at Sheppardstown in December, 1785; which vessel had then been damaged by ice. Englehart Cruze testified that he had lived in Sheppardstown in May and June, 1787, and that Rumsey had told him that his boat was damaged in the winter before [1786], and was repaired in the spring [1787]. Rumsey then spoke of Fitch's boat, which he said was moved by paddles, and said that a person had been on to Philadelphia, and had seen it. At that time Rumsey's boat had the trunks for pumping water and ejecting it fixed in it. Cruze saw the cylinder which was made at Fredericktown. It was eleven or twelve inches in diame-

ter, and Barnes was then adding a piece to make it wider. Rumsey said that he had tried the *stream* boat, [pole-boat,] and when he found that it would not answer the desired purpose, had determined to use steam.

Benjamin Harris declared that he had worked for Rumsey in the spring of 1786 for one month; that in the fall of the same year he saw the boat worked up the river with *setting-poles*, near the shore. He saw in it "a wheel nearly similar to the flutter-wheel of a saw-mill." There was a smaller wheel at the bow, "about the size of a wheelbarrow wheel, and others, with considerable other machinery." These articles belonged to the pole or stream-boat; there was nothing like flutter-wheels in Rumsey's steam-boat, which was propelled altogether by a pumping apparatus.

John Eremere made oath that he helped to take Rumsey's machinery on board his boat in May, 1786. As far as recollected, it consisted of two pipes of copper, five and a half feet long and six inches in diameter, a large boiler of copper, a large fan-wheel, with a spindle through both crosses at the ends, two long pieces of iron, eight or nine feet, and shaped similar to a soldier's cutlass [supposed to be setting-poles], a number of paddles, or small boards [for the stream-wheel]. There was no trunk or double bottom. The hold was clear all the way from stem to stern, like that of any other boat, and no steam boiler was in it.

Leonard Smith testified that he steered Rumsey's boat in May or June, 1786, when it was tried with different ways of working—among others, with setting-poles. Other machinery was put on board afterward, and the boat went up the river. It had flutter-wheels

and pieces of iron, as described by Eremere, which were for setting it up against the stream. It had no trunk or double bottom at that time, nor was such plan then spoken of.

Jacob Kendel stated that he had frequently seen the tin-work finished for Rumsey's boat by John Peters, which he stated was made in the spring of 1786. George Schnetzel declared that he had sold borax to Zimmers in February, 1786, who told him that he procured it for the purpose of soldering work for Rumsey's steamboat; which was the first he had heard of such a machine. George Jacobus Schley, of Fredericktown, testified that Fitch had shown him *his* model of the steam-boat whilst lodging at his house, in December, 1785, on his return from Richmond. He never heard of a steam-boat before, or again till the spring of 1786, when Zimmers was working for Rumsey; which was a topic of common conversation. G. Schley confirmed this statement. He never heard of a steam-boat until several months after Fitch was at his house. Rumsey's boat was not talked about before the spring of 1786. Frederick Husely was often in Zimmers' shop in the winter of 1785. He never heard of any work for the steam-boat until the spring of 1786.

John Beatty, Sr., a member of the Maryland Legislature at the session of 1785-6, lived next door to Zimmers in Fredericktown. He had no supposition at the time that Fitch applied to the Assembly that Rumsey had invented a steam-boat. He first heard of it in the spring of 1786. John Beatty, Jr., and Zaccheus Beatty, also neighbors of Zimmers, made similar

declarations. Abram Faw, also a member of the Legislature, and a resident of Fredericktown, was one of the Committee on Fitch's petition when it was presented. He knew of Rumsey's pole-boat at that time. He heard nothing of his *steam-boat* until the spring of 1786. George Kay first saw Rumsey's boat in the Potomac in 1787. It had oars, and sweeps, and poles, to use when the water was shallow. He was told that it was a steam-boat.

The evidence of witnesses on both sides may therefore be summed up as follows upon the principal point:

That James Rumsey had his steam-boat finished in December, 1785.

CHARLES MORROW,
JOSEPH BARNES,
CONRAD BYERS,
FRANCIS HAMILTON. — 4.

That James Rumsey did not commence his steam-boat before the spring of 1786.

FREDERICK TOMBOUGH,
MICHAEL BALTZELL,
JONATHAN MORRIS,
JOHN PETERS,
JOHN FRYMILLER,¹

¹ An attempt was made in Barnes' pamphlet to cast a doubt over Frymiller's testimony, by allegation that he was "groggy" after he returned from making the affidavit in favor of Fitch, which was published in "the Original steamboat supported." The material question should have been, whether he was sober when he made the statement under oath. Frymiller was again examined, and reiterated his original statement, and declared that he was not drunk at the time of his first affidavit. The aspersions on that young man were made by Christopher Raborg and Christopher Brudenhart. The latter afterwards made oath that he did not know what was in the deposition against Frymiller when he signed it. Hagner testified that Raborg denied that he had ever made oath that Frymiller was "groggy" when he made the deposition for Fitch. Moale, who was present when Frymiller left the shop to go before the Justice, declared that he was perfectly sober.

JOSHUA MINSHALL,
JOHN RITCHIE,¹
MICHAEL ENTLER,¹
JONATHAN OSBORN,¹
ENGELHART CRUZE,
BENJAMIN HARRIS,
JOHN EREMERE,
LEONARD SMITH,
JACOB KENDEL,
GEORGE SCHNETZEL,
GEO. JACOBUS SCHLEY,
G. SCHLEY,
JOHN BEATTY, SEN'R,
JOHN BEATTY, JUN'R,
ZACCHEUS BEATTY,
ABRAHAM FAW. — 21.

Excluding the statements of Messrs. Zimmers, Chas. E. Weir, Causten, and Raborg, who each told two differing stories, and are not therefore worthy of reliance on either side, we find that twenty-one persons declared that Rumsey's boat was not *commenced* until the spring of 1786, whilst but four, two of whom were interested, stated that it was *finished* in December, 1785.

Let us, then, candidly review the true condition of

¹ These witnesses were brought forward by Barnes, but they proved that the pipe-boiler was not commenced until the spring of 1786. Osborn and Entler declared that the pipes thus made were left in the shop of Entler, "*more than six months* before they were used"—Barnes then screwed them together and took them away. This circumstance seems to show that the pipe-boiler which Rumsey declared to be an "original invention," could not have been fixed in his steam-boat before November or December, 1786, which agrees with Fitch's belief that the machinery was not ready until that time, instead of December, 1785, as represented in Rumsey's pamphlet.

Rumsey's claims, as they are to be deduced from the publications, affidavits, and certificates on both sides.

There can be no doubt whatever that the boat exhibited by him at Bath in 1784, was a stream or pole boat. There is no question that the laws protecting him in his rights for his invention, passed in 1784 and 1785 by Virginia, Maryland, and Pennsylvania, were not for a *steam-boat*. Fitch made his plans public in August, 1785, by his letter to Congress. He went among the friends, acquaintances, and immediate representatives of Rumsey, in December of that year, and in January, 1786, when he sought laws for the protection of *his* invention. At that time the novelty of his plan seemed to be conceded. It was not hinted by those who knew of Rumsey's prior laws, and who had seen his boat, that Fitch's method of propulsion was an infringement. That the *steam-boat* of the latter was completed in December, 1785, seems to be contradicted by every probability. It was not until the spring of 1786 that Rumsey's intention to make such a boat was the common topic of conversation in Fredericktown. The testimony of his own witnesses, Osborn and Entler, who began the pipe-boiler in February, 1786, shows that the work was not taken away from the shop to be placed in the boat until more than six months after it was finished, say in October or November, 1786. The boat could not have been ready therefore until the latter part of that year. It will also be recollected that the successful experiments of Rumsey were not made until the 3d and 11th of December, 1787, just about *two years* after he declared that his boat was *completed*. It may therefore be asked very

pertinently, How it was that there was so much delay in exhibiting a machine which was perfect twenty-four months before it was brought before the public? During all that time Fitch was working and spreading intelligence of his discovery abroad: Rumsey, according to his own declaration, was secretly engaged in perfecting his machine, and allowing his rival to obtain laws to his detriment, not only in New Jersey, Pennsylvania, New York, and Delaware, but in Virginia, in the neighborhood of Rumsey's residence. These circumstances irresistibly lead to the conclusion, that although Rumsey may have *thought* of steam as a propelling force in 1783 and 1784 (as Paine did in 1776, and Henry did in 1778), he placed no reliance upon it. It was "an immatured idea," to use the language attributed to General Washington, and it was not until John Fitch had excited public attention by his scheme for a steam-boat, that Rumsey, abandoning his failure, the pole or stream boat, determined to employ steam as a motive power. His boat in 1786 still had the flutter-wheels and setting-poles of the original invention, as appears from the affidavits of Cruze, Harris, Eremere, and Smith. It could not have been until 1787 that the trunks were adopted, and *that* method of propulsion had before been described by Bernouilli, Franklin, Donaldson, and Fitch.¹

¹ In regard to the means of propulsion adopted by these rivals, it may be observed, that they were entirely different. Rumsey's steam-engine was quite simple in comparison to that of Fitch. It was only a steam pump. The details were similar to those of the pumping engines, then employed in England in mines, and the adaptation of such machinery was comparatively easy, as the details of the machinery of the mining pumps furnished

We might here conclude this part of the subject, but it is necessary to notice what may be termed the *official* injustice of a later generation. In 1836 the heirs of Rumsey applied to Congress for a remuneration, upon the allegation that their ancestor was the inventor of the steam-boat. A report was made March 2d, 1837, which was not acted on. At the session in 1838-9, another memorial was presented by the heirs of Rumsey.

The subject was on both occasions referred to a select Committee, of which Mr. Underwood was Chairman. The last report was most full, and of that we shall speak. It perhaps would not be unjust to say that no very minute investigation was likely to be made by a body of politicians in regard to a strictly scientific matter. It is probable that the Committee tried to examine into the subject before them fairly, but they were altogether without light, other than that which was furnished by the claimants. That the latter were in much ignorance of the real condition of the claims of their ancestor, may also be charitably suggested. The pamphlets of Rumsey and Barnes, and the "Original steamboat supported" of Fitch, were not before this Committee. Nor did they know that copies of them were in the Philadelphia Library and the library of the American Philosophical Society. The evidence which was offered was very meagre. *No notice was*

models for another. Fitch's steam-engine was, on the contrary, new. It was to perform work unlike anything done by a steam-engine before. It required originality in the plans, and ingenuity to accomplish many requisites which had been hitherto unattempted.

taken of the pole-boat; but on the contrary, it was assumed that the vessel tried in September, 1784, was a STEAMBOAT. Nicholas Orrick sustained this position. He testified that he was a partner of James Rumsey in 1783; that in the beginning of 1784 the latter built a small boat on the Potomac, and that in the autumn of that year he went on board and took with him his brother-in-law. The machinery was ready. Orrick pushed the boat into the stream, and it was worked by steam, but not to their satisfaction. "The public experiment was made some years afterward." This statement is no doubt incorrect. Mr. Rumsey never claimed that his boat was moved by steam before 1787, when the successful experiments were made in December. Mr. Rumsey says himself, in his first pamphlet, page 4, in reference to the boat of 1784, "In the month of September, 1784, I exhibited the model of a boat before his Excellency, General Washington, at Bath, in Berkeley County, calculated for stemming the currents of rapid rivers *only*, constructed on principles *very different from my present one*. [1788.] Satisfied with the experiment of her making way against a rapid stream *by the force of the stream*, the General was pleased to give me a most ample certificate of her efficiency." The same Nicholas Orrick made an affidavit, May 19th, 1788, published in Barnes' pamphlet, page 11, in which he made no reference whatever to any trial of the steam-boat in 1784, or, indeed, at any other time; but certified that he had seen Rumsey try some experiments in January, 1785; during which he poured water into a hollow wooden tube, which, by hydrostatic pressure drew up a weight,

and upon being questioned as to its intention, he said, "by that principle he would make the boat go." This was all that Mr. Orrick testified, at a time when the circumstances were fresh in his memory. The fair presumption is, that fifty years afterward his recollection had become so much impaired that he had altogether forgotten the pole-boat, of which he made no mention, and that he confused a trial made with it with the steam-boat experiments in after years. This affidavit seems to have been relied upon by the Congressional Committee without further examination; for they assumed that the Virginia law of 1784, and the Maryland and Pennsylvania laws of 1785, securing Rumsey's right to *his* invention for propelling a boat against a stream by *mechanical* powers, were really granted for a *steam-boat*!

Ashton Alexander was also examined before this Committee. He declared that he was on board Rumsey's boat when it was propelled by steam in 1786 or 1787; the latter time being the most probable. A letter was also received from Henry Bedinger, one of the witnesses mentioned in Rumsey's pamphlet, who testified to his having seen Rumsey's boat moved by steam to "Swearingen's Run; where it made a circuit and returned — a distance of about half a mile." This was no doubt the experiment to which he testified by certificate, published in Rumsey's first pamphlet. He there fixes the date of the trial on the 3d of December, 1787. On this incomplete testimony, the Committee of Congress seem to have been satisfied that Rumsey was not only the first who *thought* of a steam-boat, but the first who demonstrated the feasibility of

the principle by *actual experiment*. They accordingly, by report of February 6, 1839, so declared, and recommended that a gold medal should be granted to his Representatives.¹ This suggestion was never adopted by Congress.

Enough has already been given in these pages to show that the Committee were mistaken. As they acted altogether *ex parte*, having nobody before them to press the claims of Fitch, it is not surprising that they boldly attempted to settle so important a matter upon superficial investigation. Rumsey may have conceived the idea that steam might be applied to navigation in 1783, but he certainly made no effort to prove its adaptability to such purpose until *after* Fitch had publicly laid his claims before Congress, and published the nature of the principles which he relied upon to the world. It is a question for the reader to decide upon, who made the first successful *experiments*. It has been shown that Fitch did so in 1786, and before the members of the Convention to frame the Federal Constitution, in August, 1787. Rumsey has produced no evidence of a *public* experiment with his *steam-boat* until December, 1787.

¹ The first report, March 2, 1837, proposed to give the representatives of Rumsey a sum of money, the amount of which was not specified.

CHAPTER XVI.

THE SECOND SUCCESSFUL STEAMBOAT OF 1788.

WHILST Fitch was at New York, the ever busy Voight had been making various improvements in the mechanism of the boat, and, by the means of rollers, had managed to take off one-half the friction caused by working the oars. He also strenuously urged the adoption of the pipe-boiler. This proposition was warmly resisted by Fitch. He had "opposed it twelve months before, and continued of the same opinion." But ere the matter had been finally determined upon, "Rumsey came to town, and blazoned *his* pipe-boiler in such a light that it made the Company unanimous for it." Fitch said afterward, "I could not stand the torrent about the boiler; and knowing ourselves to have the priority, and that he must have taken the idea from Governor Johnston, who had seen my drafts, and not knowing but he would gain the priority in one if we did not adopt one, gave my hearty consent." The old style boiler was therefore removed from the boat, and pipes having been secured and properly bent, the new boiler was set up.

In the meanwhile, the eighteen-inch cylinder had been cast, but upon inspection was found to be somewhat defective. Whilst the Company were debating whether they should take it and line it with copper, to make it strong, the proprietors of the furnace, for

some unexplained reason, broke it up for pig-metal. This circumstance disconcerted the shareholders when it became known; and as they could not get a cylinder to fit their boat, they resolved to get a boat to fit their cylinder. The first boat used was forty-five feet long and twelve feet beam. The width of this craft was believed to be the greatest obstacle to its progress; and it was calculated that a boat of eight feet beam and sixty feet in length might be easily propelled by the old machinery.

At the same time, a very important modification was made in the position of the working oars. They had previously to this time been placed at the sides of the boat. They were now fixed at the stern, and pushed against the water. The number of paddles thus employed was either three or four. Brissot de Warville, who saw the boat in this year, (1788,) says there were three broad oars. Rembrandt Peale describes it (1790) with three or four oars like snow-shovels, which hung over the stern. It is very probable the number was changed during the course of the experiments; but from thenceforth the boats on the Delaware were propelled by oars or paddles at the stern.

This craft was, after many delays, completed, and the machinery set up in it; and being lightened by the pipe-boiler, which dispensed with three and a half tons of brick work, the velocity was expected to be greater. Fitch says in his journal, "We finally got it to work pretty well, and set out upon a journey to Burlington." The boat went very well until it came opposite the town. When within twenty or thirty poles of the upper wharf, where it was intended to come to, the

pipe-boiler sprung a leak, so that the engine would not work, and they were compelled to come to an anchor. Some of the Company went ashore and represented that they had anchored through choice; but upon Fitch's reaching the wharf, he stated the true facts of the case. There were on the boat during this trip, beside the inventor and Voight, Richard Wells, Thomas Say, and others whose names are not now known. It is unfortunate that the time of this long trip is not mentioned, but we are inclined to think it must have been near the end of the month of July, 1788.

In a letter of Dr. Thornton to a gentleman of London, published in Colden's Life of Fulton, dated July 26, 1788, he says, "Our boat will be tried this evening or to-morrow. * * * Ours is moved by *paddles* placed at the stern, moved by a small steam-engine."

The boat fell down with the tide. Dr. Say and Mr. Wells were set on shore on the Pennsylvania side, to find their way home as well as they could. Fitch and Voight got their vessel to the dock by the next tide. Whilst floating back they applied for assistance to the crews of several river boats, who treated them with insult and derision, and seemed highly pleased at their calamity.

An account of this voyage was given in the Trenton Gazette, July, 1855, from the reminiscences of some old persons, who remember to have heard in their youth of the first long trip of this steam-boat. We subjoin an extract:

Fitch's crude ideas, his want of experience, as well as the low condition of the mechanic arts at that early day, subjected this

unfortunate man to difficulties of the most humiliating character. Many regarded him as a visionary. His project was discouraged by those whose want of all motive for such a course rendered their opposition the more barbarous; while those whose fortune placed it in their power to assist him looked coldly on, barely listened to his elucidations, and received them with an indifference that chilled him to the heart. By a perseverance as unwearied as it was ultimately unrewarded, his darling project was at length sufficiently matured, and sixty-seven years ago the first American steam-boat was seen floating at the wharves of Philadelphia.

Public expectation was now highly excited, and the general curiosity was equally intense. Many still predicted failure, and but few encouraged him. Yet his success, amid all manner of discouragements, had so far demonstrated the merits of his plans. A reverse, however, was speedily to overtake him. His boat started on her first trip to Burlington. Crowds of persons assembled at all the prominent points along the river to see her pass, and waited for hours to witness what was then the greatest wonder of the day. At Point-no-point, now Bridesburg, the whole population of Frankford and the upper end of Philadelphia county were assembled; and they saw the boat slowly steam by them on her upward progress. Great, indeed, was their enthusiasm, and long and loudly did they cheer the grotesque exhibition. Women waved their handkerchiefs in approbation. Batteaux put off from shore and rowed alongside the steamer, cheering the adventurous and now exulting Fitch. At Dunk's Ferry a similar demonstration took place as the new boat steamed onward. A vast concourse of people had collected there from the interior of Bucks county to witness the passing of the new wonder. Loud cheers greeted her as she approached, and a cannon—one of those which Gen. Reed had vainly endeavored to carry across the Delaware on the night of Washington's masterly surprise at Trenton, and which by some oversight had been left behind—was hastily loaded and discharged in honor of the discoverer of navigation by steam. At length she approached her destination. So far, every thing had gone on to the satisfaction of Fitch, whose crudely constructed machinery

had performed its office for several hours in succession without any faltering. He believed that he had demonstrated the reality of his anticipations, and that the share-holders in the company, many of whom were on board, would be entirely convinced, and able to comprehend the magnitude and value of the great discovery he had thus established. The green bank at Burlington was thronged with ladies, who beheld with astonishment the * * * * apparition as it swung its uncouth oars * * * yet steadily advanced without wind or sail. The town wharf was also densely thronged with people. As the boat came opposite the wharf she rounded to, and even while the cheering went up, both long and loud, she unexpectedly dropped anchor in the middle of the river. A batteau was sent off to learn the cause, when it was discovered that she had burst her boiler!

There was nothing in the character of this accident to discourage the projectors. The vessel had done what had never been done before in any part of the world. It had been impelled, by the force of the elastic vapor, *twenty miles*; and the casualty which caused the stoppage was of a trifling character, and of easy repair. Fitch and Voight set to work to tighten the boiler and make other improvements. Whilst engaged in these operations, their boat was seen and examined by the eminent French traveller, J. P. Brissot (de Warville). The translation of that portion of his account of his travels relating to this subject is very imperfect in the English edition published by Corbet, Dublin, much being omitted. The following has been translated from the original, and is more full and complete:

LETTER XVI.

INVENTION FOR ASCENDING RIVERS.

Monday, Sept. 1st, 1788.

* * * * * I went to see an experiment which was being tried near the Delaware, on board of a boat, the object of which was to ascend rivers against the stream. The inventor was Mr. Fitch. He had formed a company to carry out his enterprise. One of the stockholders, and his most zealous advocate, was Dr. Thornton, of whom I have already spoken. Mr. Fitch's claim to this invention had been disputed by Mr. *Ramsay, of Virginia*, and the discussion had occasioned the publication of several pamphlets.

Be that as it may, the machine I saw appeared to me to be well executed, and to answer its purpose; through the agency of fire it put in motion three broad oars, the power of which must be considerable. I was assured that it made twenty-six strokes per minute, with the promise of sixty. I was told that a similar boat, with a capacity to transport ten to twenty tons, would only cost from three to four hundred pounds, that it could be managed by two men, one at the helm, and the other continuously employed at the machine, keeping up the fire, &c.

I had no doubt that, physically speaking, this machine would produce a part of the effects expected from it, but I *do* doubt whether it could be useful in commerce; for, notwithstanding the assertion of the builders, it appeared to me that the machine demanded extensive renewals, that it required many men to be continuously engaged about it, and that consequently the expenses would be considerable, either for repairs which must frequently result from the rapidity and multiplicity of the motions, or for the attendants. I admitted, however, that if economy could be introduced in the renewals, and the movements could be simplified, this invention might be useful in a country where manual labor was dear, and where the rivers were not, as in France, accessible for horses and for men, who take the place of machines for ascending rivers.

This idea consoled Dr. Thornton, who, I saw, was assailed with jokes on account of this STEAM-BOAT.

there were thirty passengers on board, and they were taken from Philadelphia to Burlington (estimated twenty miles) in three hours and ten minutes, with a tide which set at the rate of two miles an hour. A certificate of this fact was given by Andrew Ellicott, Richard Chase, John Poor, and John Ely. On the 16th of October, 1788, Jno. Ewing, Robert Patterson, Andrew Ellicott, John Smilie, David Redick, James Hutchinson, Timothy Matlack, Chas. Pettit, J. B. Smith, and David Rittenhouse were on board, and Capt. John Heart, of the 1st U. S. Infantry, certified that "the boat moved at the rate at least of four miles an hour," and that he was "fully convinced that the same force applied to a boat would be sufficient to carry it against the most rapid waters between the mouth of French Creek on the Allegheny, and the mouth of the Muskingum upon the Ohio, and that on an average it would carry it between three and four miles an hour on any of the Western waters."

But this rate of speed did not satisfy the projector or his associates. It was thought that the boat ought to be able to go from Philadelphia to Trenton (then estimated thirty-eight miles) in five hours, to be an object worthy of prosecution upon the Delaware. The patience of a majority of the members of the Company became exhausted, and they withdrew from the concern. To add to the troubles of the inventor, his tried companion, Voight, also abandoned the work, urging the duty which he owed his family, whose interests had been neglected whilst he was engaged upon the boat. In this distressing and dispiriting state of affairs, the perseverance and energy of the unfortunate man did

not fail. He determined to again endeavor to arouse an interest among the shareholders by attempting to form a new and auxilliary company. For this purpose he drafted proposals, and furnished an estimate of the probable cost of perfecting the machinery, so as to make the boat go faster, together with a calculation of the receipts. Those papers were as follows:

PHILAD., 5th Dec., 1788.

PROPOSAL OF JOHN FITCH TO THE STEAMBOAT CO.

Whereas, from the great difficulties that have arrisen in the execution and compleation of the Staam Boat beyond our first calculation, and the present improbabilities of raising sufficient supplies from the present Co. — Therefore makes the following proposals, — That the scheme be divided into Eighty shares, forty of which shares to be given to subscribers, who shall take the present boat, with all its appurtenances, and put a Boat into use as soon as possible by the aid of steam, — as soon as this purpose shall be effected, and the Boat shall earn £100 neat profits from the first running, then the original present owners shall be entitled to draw equal to the shares they will then hold of the s^t £100, and of all future boats and emoluments, provided they bear the then equal proportion of all future expenses, &c. &c.

JOHN FITCH.

ESTIMATE.

The resistance which Water gives, is as the square of the Velocity with which any Body acts upon it. If Water should resist a Boat, so as it would take 4 men to row it 2 miles per hower, it would require 16 men to row the same Boat 4 miles per hour, and 36 men to row it 6 miles per hour: Then suppose our Boat went at the rate of 4 miles pr hour, the resistance of the water we may call 16; Then as a 12 inch cylinder, or 144 Circular Inches, is to 16, so is an 18 inch cylinder, or 324 Circular inches; to 36; the square root of 16 is 4, the square root of 36 is 6; consequently if our Boat went 4 miles pr hour with a 12 inch cylinder, an 18 inch cylinder working with equal force, according to its size, would carry the same Boat 6 miles pr hour.

Then suppose the tide to help us 8 miles between this and Trenton, it would carry the Boat to that place in 5 hours.

It may be relied upon, that this may be done from what skill we have already obtained, and if we can get Mr. Hall to assist, probably a great deal more, which I believe would answer every purpose which we have calculated for. But every individual is as capable of judging as myself, whether passengers would prefer going in a Boat in five hours at 5s. or in a waggen in four hours for 10. If they would prefer the Boat, and the number of passengers to Trenton may be estimated at 8 per day, at 5, and 12 per day at Bordentown and Burlington at 3 9d each, going and coming, it would amount to £8.10.0 per Day, and if we should allow 30s. per day for expences, the clear profits would be £7:0:0 per day. This, in 250 days in a year, would be £1750, which will justify the continuance of the experiment.

The following is an estimate of the expence of compleating the Boat. — A Boiler supposed to weigh 600 lb. at 3 is £90. A cylinder bored compleat for the works, £50, cocks and tubes at £30, workmanship for hands, &c., £100, Extra expences £100, in all £400. This, it appears to me, is more than it can cost, and 40 shares at £10 each is £400. These calculations are the most unfavorable that can be made.

The proposal and estimate were shown to some of Fitch's best friends; and although £1600 had already been spent in the enterprise, forty new shares, at £10 each, were subscribed for, and it was decided to procure an eighteen-inch cylinder in time to prosecute the work in the spring of 1789. The humiliation which the projector was compelled to suffer whilst prosecuting this business, is thus feelingly told by himself in his MS. Journal.

“But the former imbarassments, which I have mentioned, were but inconsiderable when compaired with other matters, considering the indignities offered me by my best friends and Patrons, who in many instances treated me more like a slave

than a freeman, whilst I was in the most excruciating tortures of devising plans of completing my undertaking, which was far beyond my abilities. Not only that, but I was obliged to collect moneys from my best friends, who rather esteemed it as moneys levied and collected by me, and extorted from them from a mere point of their honour; which ever has been more severe to my feelings than any thing which I ever experienced before. Not only that; I have been continually tied with duns from our workmen, and embarrassed with Constables, for debts; and continually so bare and mean appearance, that every decent man must and ought to despise me from my appearance. Not only that, but dare not scarcely show my face in my own Lodgings; which occasioned me never to remain in them longer than I could with the greatest expedition swallow down my food; which always in the evening drove me of to a tavern, and, altho I always kept good hours at my return, always drove me to my head. Not only that; altho they were worthy, respectable people, I dare not find fault with any thing which I might with propriety do could I have paid them weekly, but was obliged to suffer just indignities from my landlord and be henpicked by the women. Added to all this, there was the Most Powerful combination against me, who thought that they could not serve God or themselves better than saying every illnatured thing they could of me; which made me heartily curse my Barberus Capture for staying the savage Blow."

The names of the members of this new Company have not been preserved. It is likely that some of the first patrons of the scheme were in it. We have given the names of the Company of 1787 in a former page. There are known to have been connected with the experiments before they ceased entirely, in addition to the gentlemen already mentioned, Dr. William Thornton, Isaac W. Morris, Samuel Wetherill, Jun., Richard Hill Morris, Judge James Wilson, Captain John Heart, Wood Lloyd, Francis Wit, Stacy Potts, and Robert

Senr. Colonel Cox, of Burlington, gave twenty dollars toward the experiment, and Robert Morris fifty dollars: but the two latter were not stockholders.¹

¹ DR. WILLIAM THORNTON lived in 1793 in Callowhill Street, near the Ridge Road. He was an ingenious and scientific man, a member of the American Philosophical Society, and of the Library Company of Philadelphia. He drafted the plan of the present building occupied by the Library. He was the first Superintendent of the United States Patent Office; a position which he held for many years. Dr. Thornton was one among the few to whom the American Philosophical Society have awarded the Magellanic gold medal. It was voted to him in 1792, for an Essay on the written elements of language, signed "Cadmus."

ISAAC W. MORRIS, brewer, lived in 1794 at No. 65 South Second Street, and had his brewery at No. 4 Pear Street.

SAMUEL WETHERILL, JR., druggist, resided in 1791 at No. 9 South Alley. [Commerce Street.]

RICHARD HILL MORRIS, merchant, had his store in 1794 at 135 High Street, and his dwelling at 113 Walnut Street.

THE HON. JAMES WILSON, Judge of the Supreme Court of Pennsylvania, a signer of the Declaration of Independence, was born in Scotland, about 1742. He studied law at Philadelphia, under the direction of John Dickenson, author of "The Farmer's Letters." He was a member of the Congress of 1775, 1776, and 1777, a member of the Convention to form a State Constitution for Pennsylvania, and of the Convention to form a Constitution of the United States. In 1789, he was appointed a Judge of the Supreme Court of Pennsylvania; and in 1797, Professor of Law in the University of Pennsylvania. In 1785, he lived in Chestnut Street, between Fourth and Fifth, and in 1791, at No. 230 High Street.

CAPTAIN JOHN HEART was an officer of the Army of the United States. He does not appear to have been a citizen of Philadelphia.

WOOD LLOYD, tailor, kept his shop in 1791 at No. 32 South Water Street.

To increase his troubles, Rumsey, backed by a strong Virginia interest, was now contesting his right to his invention. An association called the "Rumseian Society" was formed in Philadelphia during the summer of 1788, to forward the pretensions of the Southern claimant. Although Fitch had notoriously shown, in the early experiments of 1786 and 1787, that it was possible to propel vessels by his plan, the persons who took up the cause of Rumsey were disposed to look upon their own townsman with contempt. Of this Society Dr. Franklin was a promoter; and it is not out of place to say here that his conduct to Fitch from the first promulgation of his plan of a steamboat seems to have been ungenerous. In patronising Rumsey's scheme of a pumping boat, Dr. Franklin was doing all that was in his power to demonstrate the superiority of *his* plan of propulsion over that of Fitch; and it needs but little acquaintance with the springs of human

FRANCIS WIT (the name is so spelled by Fitch) was most probably *Francis White*, "Dealer in public securities;" or, in modern parlance, a broker. He brought out the first City Directory, in 1785. Captain John Macpherson also published a directory in the same year. Mr. White, in 1785, lived on Chestnut, between Second and Third Streets; and in 1791, at 208 High Street.

STACY POTTS was a respectable citizen of Trenton, N. J., who very early withdrew from the Steam-boat Company.

ROBERT SCOTT, engraver, resided in 1785 at the corner of Second and Chestnut Streets, and in 1791, at 106 Chestnut Street. COLONEL JOHN COXE, of Burlington, N. J., was father-in-law of John Stevens.

The HON. ROBERT MORRIS, Senator from Pennsylvania, and so well known as the great merchant and financier of the Revolution, lived in 1791 at the south-east corner of Sixth and Market Streets, in a house which once belonged to the traitor Galoway.

action to discover a cause for his conduct. The Rumseian Society, in addition to Franklin, was composed of the following members: Arthur St. Clair, William Bingham, Benjamin Wynkoop, James Tunchard, John Jones, Levi Hollingsworth, Joseph James, John Wilson, George Duffield, Reed & Forde, Woodrop Sims, Joseph Sims, William Redwood & Son, William Barton, Richard Adams, Samuel Magaw, Adam Kuhn, Miers Fisher, Charles Vancouver, Burgis Allison, John Vaugh, John Ross, William Turner. (See *Colden's Life of Fulton*.)

It is also certain that some of the opponents of Fitch were incensed against him upon political grounds. Dr. Rush, in a letter to Dr. Lettsom, of London, introducing Rumsey to his attention, calls Fitch "a person in this city, remarkable for his licentious opposition to the Constitution of the United States." Fitch was an anti-Federalist.

This Society sent Rumsey to London early in 1788, to secure patents there. Encouraged by the association, Joseph Barnes, who in the absence of Rumsey was his attorney in fact, began a very vigorous attack upon the rights of Fitch, which had been already secured by law. The first movement was made in the Assembly of Pennsylvania; where a petition in behalf of the Virginian was presented in the beginning of September, 1788. Remonstrances by Fitch, as inventor of the steam-boat, and of Voight, as owner of the right to the pipe-boiler, were read on the 6th. The matter was referred to a committee of seven members, consisting of Messrs. Wynkoop, Chapman, Loller, Rittenhouse, Findley, Kennedy, and Willing. Miers

Fisher, a lawyer of Philadelphia, represented Rumsey, and Colonel Richard Wells supported the claims of Fitch. The parties had a full hearing, which lasted five days. The Committee reported as follows :

"That having examined the said Petitions, and with great attention heard the parties in support of their respective claims, are unanimously of opinion that the law which grants to John Fitch an exclusive Right in all Boats propelled by Fire and Steam, hath not only secured to him and his Heirs, &c., the exclusive right to the method he had then invented for the purpose of applying the powers of Fire and Steam in order to propel Boats, but also whatever *improvements* he may make himself, or obtain from others, during the time limited by said law ; and however improper or extensive a law may be in its principles, yet, Considering that upon the faith of the said law several Citizens have spent much labour and money, for which they are not reimbursed, and notwithstanding the Legislature may have a right to repeal Laws that convey grants highly injurious to the public welfare, yet the re-assuming such legislative grant ought never to be done unless upon the most pressing necessity."

The Committee therefore reported that the petition of Rumsey ought to be granted, except so far as it respected "the propelling of Boats by the force of fire or steam." They also passed a resolution that the prayer of Henry Voight could not be granted.¹

The next hostile demonstration was made in Virginia, where Charles Morrow presented a petition on behalf of Rumsey, praying that the act securing the rights of John Fitch should be repealed. The latter being unable to attend the assembly, transmitted a letter, petition, and argument against the proposed move-

¹ It is presumed that Voight's claim was opposed by Fitch, as the original inventor of the pipe-boiler. The two were not then in partnership.

ment. The papers were referred to Messrs. Trage, Henry, Randolph, Carlins, Bland, White, David Stuart, Carrington, and King, who reported November 21st that the act in favor of Fitch ought to be *repealed*. This report was *rejected* by the House, ayes 15, nays 100.

From Virginia the indefatigable Barnes transferred the contest to New York. Petitions were presented in behalf of Rumsey's steam-pump, steam-boat, saw-mill, and other inventions. At the same time John Stevens, claiming to be the inventor of a steam-boat which did not interfere with the others, also asked for legislative protection. Fitch protested against these propositions by letter and remonstrance, which were presented in December. The Committee, Messrs. G. Livingston, Havens, and Van Cortland, reported that the act securing the rights of Fitch was conceived in such general terms that it would be improper to vacate it without giving both parties a hearing; that they were of opinion that Stevens' plan did not differ much from Rumsey's, and that both differed from that of Fitch, but that there was nothing in Fitch's act which would prevent the Legislature from securing to Rumsey "the exclusive right of generating steam by a pipe-boiler." They therefore recommended that a bill should be brought in to secure him in that invention, and in the others which were not contested. This report was presented December 23d.

In New Jersey a bill to give Rumsey exclusive rights was now presented. A remonstrance was prepared, but the Assembly laid the matter on the table until the next session. The Legislature of Delaware was also

besieged by the same influence, but with no better success.

These failures did not discourage the members of the Rumseian society. They made a new effort before the Assembly of Pennsylvania in the spring of 1789. A scheme was suggested for the appointment of commissioners to grant patents on behalf of the State. The Judges of the Supreme Court were consulted as to its legality. Fitch, who saw in the measure an attempt to injure him, protested against it on the 11th of March.

The Committee was composed of Messrs. Lewis, Clymer, Downing, Nevil, and Hoge.

The question proposed to the Judges of the Supreme Court was —

“Can this House, consistent with the principles of law and justice and the Constitution of this State, enact a law upon the principles reported before this House, in the case contested between John Fitch and James Rumsey?”

The matter was argued by Miers Fisher, a lawyer for James Rumsey, and by Mr. Wells for John Fitch. The opinion of Chief Justice McKean was evidently biassed by prejudice. He argued that if Fitch's law was obtained by deception, it might be repealed. He suggested that it was possible that there *was* deception, therefore the Legislature had the power of repeal.

Judge Bryan was opposed to disturbing the law. He referred to the English laws granting monopolies, and showed that they had been sustained for the reason that, having been passed, it was better to abide by them than disturb the course of law, as it was a mischievous thing for government to have its faith suspected.

A third Judge gave no written opinion. The Committee, upon consultation, again reported in favor of Fitch, by declaring that the passage of a patent law by the State was inexpedient. The matter was postponed, but towards the end of the session Mr. Fitzsimons presented a bill to secure Rumsey's right to a steam-boat, which was rejected.

Fitch, notwithstanding his poverty and distress, was not humbled by his misfortune, but was bold in defence of his invention. He, therefore, notwithstanding the high social position of the persons who had offended him, prepared and published the following notification. It appeared in the *Independent Gazetteer*, March 31, 1789:

TO MESSRS. GEORGE CLYMER and THOMAS FITZSIMONS,

GENTLEMEN:

I think proper to tell you that I have felt the full force of all your endeavors to injure me, in the state which has sent you to Congress; but, notwithstanding every exertion you, as members of Assembly, have been able to make, my rights in Pennsylvania remain yet unshaken — The attempt made by you Mr. Fitzsimons to introduce a bill into the House, to take them by surprise, and was purposely intended to hurt me, was treated by the House as it justly deserved, and you were not permitted to deliver it to the Speaker.

The active and unnecessary part which you Mr. Clymer took to endeavor to get another law passed, that was intended to ruin me, you will be mortified to have it known to the world that you failed in your design, but I think I ought not to suffer it to pass in silence.

You are now going to Congress, and wish to have it known to your fellow-citizens that I deem you my professed enemies on this subject, and that you will leave no stone unturned to hurt my interest with that honorable body.

JOHN FITCH.

PHILADELPHIA, 28th March, 1789.

Mr. Clymer came out in the papers a day or two afterward, and charged that publication to Mr. Wells. To this Fitch replied, assuming all the responsibility, and denying that Col. Wells had any knowledge of or connection with it.

These contests kept our disputant very actively employed, and distracted his mind from the proper business of the Company. After the legislatures had adjourned, he set out to Shepherdstown, in Virginia, "where Rumsey did his mighty feats." He started on that journey about the middle of May. The landlord of the inn where he lodged was inquisitive about his business, and Fitch told him the object of his visit in confidence. He inquired how fast Rumsey's steamboat went. The landlord said, *nearly* as fast as he could walk." This was noted down; seeing which, he corrected himself by saying "as *fast* as he could walk." Correction was made accordingly, when he again changed his phrase to "*faster* than he could walk." Fitch then went out into the town, to hunt up information. He declared that he discovered that Barnes had made a bet with a certain Captain Ross, that Rumsey's boat would ascend the Potomac at the rate of three miles an hour; which wager was lost, and Ross got the money. At that trial Fitch was told that the boat was not carried further than *four* inches; and he was informed that Rumsey had *never* carried his boat further than *four hundred yards* by steam.¹ He

¹ It is remarkable that in all the certificates of Rumsey's experiments, December 3d and 11th, 1787, the *distance* passed over by the boat is not specified. They only state that it was moved by steam, "*at the rate* of three miles an hour," on the 3d, and "*at the rate* of four miles an hour," on the 11th.

also declared that the trunks were not placed in the boat until the spring of 1787; and that *spies* were in Philadelphia, watching the movements of Fitch and Voight, in 1786 and 1787.

The bold errand which brought the Philadelphian into the enemy's camp was soon rumored about the town, and our adventurer got himself into difficulty. He was insulted by Charles Morrow, and only escaped a fight with him by prudence. He left Shepherdstown the same afternoon, crossed over into Maryland, and went by a circuitous route to Sharpsburg, about four miles distant from the former village. Leaving this place the next day, he again kept out of the high road (in order to avoid some iron-works, at which he believed friends of Morrow were to be found) and went toward the Great Falls of the Potomac. It was not necessary for him to go so far. On the road, and at Harper's Ferry, he got from Eremere, Cruze, Harris, Smith, and others, the information he wanted. The affidavits were made at Sharpsburg, from which place it was necessary to go to Hagerstown, to get them authenticated by the county seal. He returned, and stopped near night at the house of one Lewis, on the road to Sharpsburg, where he came upon an assemblage of the friends of the opposition. They were rough and unmannerly, and they were ripe for an attack upon the unoffending stranger. He tried to conciliate them in the usual way at that time, by ordering in whiskey for their refreshment. The majority drank with him, but one Crampton refused to do so, and amused himself while at supper by throwing a potato at "the steam-boat man." The latter remonstrated, but kept his

temper very well, and Crampton and some of his companions at last went off, declaring significantly that they "intended to return in the morning." The hint was not lost upon our adventurer, who rose before daylight, gave out that he was going to Sharpsburg, and went away in the right direction. When out of the sight of the people in the house, he changed his course, and by a detour got into the road to Philadelphia, "walking fifteen miles to go three." No other danger menaced him, and in good time he got to Philadelphia with his additional proofs.

Among other ideas of the practical application of steam which he had formed, either at this time or previously, was a contrivance for a steam ice-boat. He communicated his views to Oliver Evans, who thus related them in an affidavit sworn to in 1814:

About the year 1786, 1787, or 1788, John Fitch informed me that he contemplated employing steam on the Lakes, and meant to construct two keels to answer as runners; and when the Lakes would freeze over he would raise his boat on the ice, and by a wheel on each side, with spokes in the rim to take hold of the ice, he calculated it would be possible to run thirty miles an hour; and also that he meant to tow boats and other floats by steam boats.¹

¹ Duer's second letter to Colden, Appendix.

CHAPTER XVII.

NEW MACHINERY — IMPERFECTION OF THE WORK —
DESTITUTION OF FITCH — THE PACKET, PASSENGER,
AND FREIGHT STEAM-BOAT OF 1790.

THE acrimonious contests with Rumsey had taken up much time, and delayed Fitch and the steam-boat company from the work of finishing the boat. There was now a respite, and the affairs of the shareholders were put in a condition to resume operations. Most of the debts were discharged during the winter of 1788-9, and in the month of March a new cylinder, eighteen inches in diameter, was ordered of Drinker, of Atsion furnace. The casting of such a *large* piece was, from the paucity of means possessed by the founders, considered a very difficult undertaking, and the work was not completed until some time in the month of June. It was then bored, and means had to be taken to fix it in the boat, so that they were not ready for a trial until near the end of August. Hall's condenser had been set up in the boat, but before an experiment was made Dr. Thornton, who had invented a new plan of a condenser, advocated the substitution of one upon *his* method for that which was prepared. This proposition succeeded. Hall's condenser was taken out, and after a delay of a week, Dr. Thornton's was substituted. This vessel was made of eight-pound sheets of copper. Fitch at once perceived that such a thin material would

be unable to resist the pressure to which it would be subjected. He earnestly begged that eighteen-pound sheets should be used. His appeal was disregarded. The flimsy material was adopted, and at the first trial the condenser "crushed in like an eggshell." A stronger vessel, on the same principle, (Thornton's,) was ordered, and in the meanwhile the engine was tried with the old Hall condenser. The boat moved along tolerably well, — as swiftly as it did in the previous summer, — but not with the speed which those concerned desired to obtain.

In the meanwhile, an important change had taken place in the political relations of the independent members of the Confederacy of States. The Federal Constitution had been adopted, and the new Congress, having powers far more extensive than was possessed under the Confederation, had assembled at the city of New York on the 6th of April, 1789. Scarcely had the new President been sworn into office, before Congress was besought by authors and inventors to grant to them exclusive rights. David Ramsay, of South Carolina, the historian, asked for a copyright for his writings. John Churchman wished protection for the maps and charts for discovering the latitude and longitude by magnetic variation, which he was about to publish. Alexander Lewis, of Pennsylvania, had an invention for navigating boats of twenty-five tons and under against rapid streams. Arthur Greer had a machine to discover the longitude. Jedediah Morse wished a copyright for the "American Geography;" and on the 13th of May, John Fitch besought an interposition in his favor, as appears by the following record:

Wednesday, May 13, 1789. — The Petition of John Fitch, of Pennsylvania, was presented, stating that he is the original discoverer of the principle of applying steam power to the purposes of navigation, and has obtained an exclusive right therefor, for a term of years, in the states of Virginia, Delaware, Pennsylvania, New Jersey, and New York, and praying that his rights may be secured to him by law, so as to preclude subsequent improvers on his principles from participating therein until the expiration of his granted right.

Referred to a committee, consisting of Messrs. Huntington, Cadwalader, and Contee, to report thereon.¹

The result of the deliberations of the Committee upon all the petitions before them, was the preparation of a bill "to promote the progress of science and useful arts, by securing to authors and inventors the exclusive right to their respective writings and discoveries," which was received and read in the House of Representatives for the first time on the 23d of June. It was not acted upon, and was postponed on the 10th of August until the next session.

Whilst the spirit of Fitch was harassed by these delays and constant failures, Voight, out of pity, came to his aid. Thornton's condenser was at length finished and applied. "The boat carried on cleverly, but did not exceed the performance of the preceding summer, with the twelve-inch cylinder." Representations were made to the Company in reference to the matter, and the shareholders authorized new experiments. Voight had invented a plan of a pipe condenser. This was tried, but with no better success. These alterations took a great deal of time, and wearied out the patience

¹ Journal of the House of Representatives U. S., First Session, page 42.

of all concerned, beside occasioning a serious waste of money. Fitch became dispirited, and yielded the management to Voight, whilst he rather occupied the position of a spectator. Voight invented a curious forcing-pump, to throw a jet of water into the condenser. The construction of this pump was an expensive and tedious piece of business, which procrastinated the work. When it was finished, the performance of the boat was not a whit better. Puzzled and despairing at the constant failures, no matter what changes were made in the condenser, Voight and Fitch—for the latter was again active—began to surmise that the difficulty lay in some other part of the machinery. The air-pump it was previously thought was not of sufficient power, and accordingly an effort was made to improve it by enlarging it. This “brought the engine pretty nearly to perfection.” It was tried again, “and did pretty well, but the condensation was imperfect.” A day was set to give the engine something like a fair trial. Fire was placed under the boiler early in the morning, and steam was made. But there arose a tremendous gale, against which even steam did not then dare to contend. The fire was quenched, as it was thought, but it was not entirely extinguished; some cinders remained. They ignited the wood-work, and before morning holes were burned in the boat to the water’s edge on each side of the grate or furnace. Fitch was apprised of the accident in the night; and hastening to the Delaware, he succeeded in sinking the boat and extinguishing the fire. Nothing daunted, the Company set to work to raise her again. The injuries were repaired, and the steam-boat, being tried, was

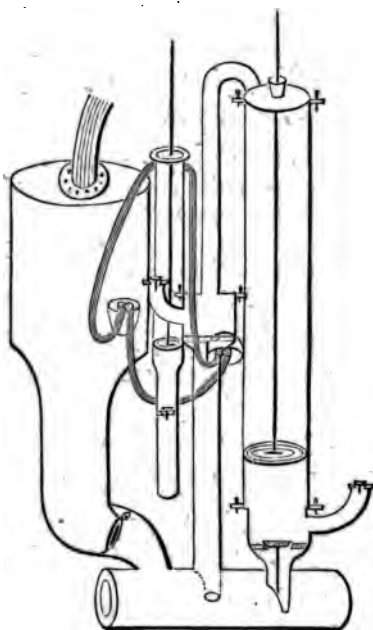
found to go very well, but not fast enough for a river packet. These experiments were made in December, 1789. The cold weather now approaching, the boat was laid up; and the excitement attending it being suspended, the enthusiastic schemer had some time to attend to his own affairs. His situation was truly affecting. His clothes were nearly worn out, he was in rags, and largely in debt for board. He went to Bucks County in January, and remained there ten days. On his return, Mrs. Krafft, who kept an inn at No. 462 North Second Street, again received the beggared genius, and permitted him to remain until his means would allow him to pay her. He had boarded there for some two years previous, and probably remained there while in Philadelphia. In Biddle's Directory for 1791, which was not published until some time in May, we find the following entry :

"FITCH, John, owner of the steamboat, 462 No. Second St."

In the same book is the following :

"VOIGT, Henry, Clock maker, 149 No. Second St."

During the winter of 1789-90, Dr. Thornton, Mr. Wells, and Mr. Stockton resolved to have the boilers of the boat altered. This improvement it was estimated would cost £50. It is presumed that Voight's pipe-boiler did not work well. There was some objection on the part of Fitch, upon account of the expense; but he was overruled, and the improvement was finally settled upon without other modifications. John Brown made the grate; and probably Jacob Graff did the most of the work upon the boiler.



Cylinder, Condenser, and Air-pump of Fitch's Steam-boat.
[From the original drawing in the Philadelphia Library:]

At the session of Congress in 1790, the subject of inventions and inventors was brought to the attention of the members by a petition from John Stevens, Jr., of New Jersey, praying that exclusive privileges should be granted to him for improvements on the steam-engine, which he had made by a new mode of generating steam.¹ This memorial was referred, on the 8th of February, to a Committee, consisting of Messrs. Burke, Huntington, and Cadwalader. On the 16th,

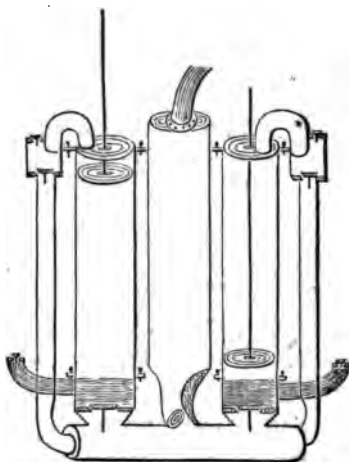
¹ Journal of the House of Representatives, page 30.

Mr. Burke presented a bill "to promote the progress of useful arts." On the 10th of March, that bill passed the House and was sent to the Senate. Fitch, who was watchful, did not like some of its features, and he remonstrated against it to the Senate.

March 22, 1790.—The Petition of John Fitch was read, praying that a clause providing for a trial by Jury might be inserted in the bill before Congress "to promote the progress of useful arts."

Ordered, that the Petition be referred to the committee who have under consideration the last mentioned bill.¹

A report, with a bill, (not according to Fitch's request, however,) was presented shortly afterward. It



Cylinder, Condenser, and Air-pump of Fitch's Steam-boat.
[From the original drawing in the Philadelphia Library.]

was passed March 30th, and signed by the President April 10th, 1790. And thus commenced the patent-

¹ Senate Journal, page 48.

law system of the United States; which, in consequence of the ingenuity of our countrymen, has become one of the most important jurisdictions of the Government.

In the spring of 1790, the Steam-boat Company began to put the works on board, some of which had been taken out when the boat was laid up in the previous winter. The alterations to the boiler were also in progress. The pleasant prosecution of the business was prevented by recriminations and quarrelsome scenes between Fitch and some of the Directors. His temper was soured, and he was irritable and insulting. In reference to these defects, he himself confessed his weakness. He said,

"My temper of mind, being so different from any man that I ever saw before, caused me many new difficulties. My natural disposition I find to be truly this, which I have experienced several times in the course of my life; it seems to be a part of my existence, and I cannot overcome it: When in easy circumstances, modest to excess, and put up with almost any indignities, and resent them no other way than by a familiar levity; but when in wretchedness, haughty, imperious, insolent to my superiors, tending to petulance; yet exceedingly civil in both instances till indignities are first offered to me; and the greater the man, the more sweet pleasure in retorting upon him in his own way; and a man in this disposition to be in low circumstances, can never get through the world easy."

The cause of dispute at this time was in reference to the propriety of getting a new condenser. The Directors ordered a new one to be made, twice as large as any which had previously been tried. To this Fitch was opposed. The new article was finished, however, and placed in the "condensing-tub," which had to be

enlarged to hold it. Preparations were made to try the boat by Easter Monday. The engine would not work with any degree of force, and the little vessel scarcely stemmed the tide. Dr. Thornton was much discouraged. Already *seven* condensers had been tried, of different sorts and sizes, and all had failed. The five small ones were the most successful. That of 1787, a pipe-condenser without injection, was the best. Fitch, as usual when he desired to carry out any point, resorted to his pen, and placed his ideas upon paper. He declared that the defect so long observable in the manner in which the boat worked, the cause of which had so long puzzled them, could not be in the cylinder, air-pump, or boiler; but must be in the condenser. In regard to the latter, he made the following observations:

“The principle which I have urged for several years, and which I think we ought now to attend to, is the point of Condensation; and if possible, bring the steam presizely to the valve of the air pump, which should drive the air before it thro the valve, and condence the steam before it passes; but if a small quantity of steam should pass the valve, I conceive no great inconveniancy from it; for when our Engine worked its best, in the year 1787, Mr. Voigt frequently said that we wanted a better condensation, for our air pumps drew steam.

“Thornton’s Condensor is undoubtedly one of the best calculated to condence without a jet of Water; but I conceive the difficulty of getting rid of the air is insurmountable. Suppose a Condenser to be made on his plan, as represented by Figure 1. Suppose A to be the cylinder, B the Condenser, C the Air Pump. When the steam is let out of the Great Cylinder to the Condenser, I expect that the steam is destroyed by the time that it arrives at *e*; then the space between *e* and the valve of the air pump, *h*, must be filled with air. As soon as the steam is destroyed the air expands, and occupies all the space from *h* to *g*

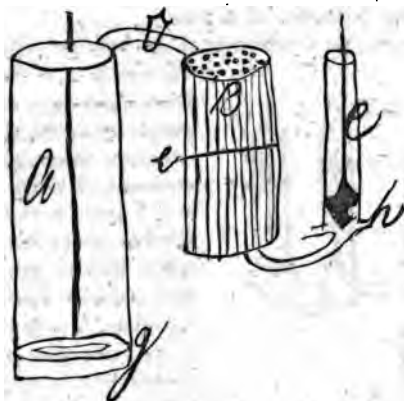


Fig. 1. Dr. Thornton's Condenser, Cylinder, and Air-pump.

in the great Cylinder. The great Cylinder, being hot, expands the air, and opposes the piston nearly equal to Common air; and when it is drove back again by the steam to the Cold Condensor, it becomes nearly equal to common air in density, and skulks into the botom of the Condensor for security, where it cannot be dislodged until the steam is destroyed, when it rushes out and does the same injury again; which Coudensor leaves such a stronghold for it to fly to that it can never be expelled by steam; consequently we have always nearly an atmosphere to contend with.

"Suppose we were to Condence our steam by letting it run through a tube in common air; that tube must be of great length, and the point of Condensation would be very unequal; and if it did not arrive at the extream end, where the air pumps should be fixed, the air which should not be expelled would return again, expand with the heat, and have a pernicious tendency in proportion to its quantity.

"But by letting a tube run through the Water, would bring it to a more nice point; but as the Water would be sometimes cooler and sometimes Warmer, it cannot be brought to so nice a point as by an injection; and the *smaller* that the Condensor

is, I believe the more perfect the vacuum can be made, provided the steam can be destroyed in time.

But suppose our Condensers of one straight tube, as Fig. 2.

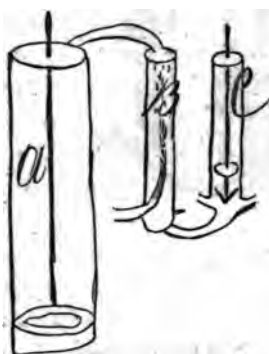


Fig. 2. John Fitch's Condenser, Cylinder, and Air-pump.

Suppose A to be the Cylinder, B the Condensor, and C the air pump; when the steam rushed out of the Great Cylinder to the condensor, I think probably it would arrive to the valve of the Air Pump, and drive the air before it thro the valve, as on its first arrival it would check the injection; If not, the quantity of air remaining would be inconsiderable to what would be in a large Condensor; consequently, less capable of injuring us, and much more perfect vacuum formed."

This paper was shown to some of the Company, and they agreed to try the thing. Another condenser was ordered, and this, with other alterations, seems to have secured the long-sought result.

On Monday, the 12th of April, the machinery was tried; and it worked so forcibly that a pulley was broken. They were compelled to come to anchor. A strong north-west wind was blowing. Several sail-boats passed them, but refused any help, jeering, at the same time, at their misfortune. There was now some hope of success; and a new and stronger pulley having been procured, the adventurers made a trial which was glorious in its consequences. In the simplicity and exultation of his heart, Fitch thus exclaims in his journal:

"On the 16th of April, [1790,] got our work compleated, and tried our Boat again; and altho the wind blew very fresh at the north east, we reigned *Lord High Admirals of the Delaware*, and no boat in the River could hold its way with us, but all fell astern, although several sail boats, which were very light, and heavy sails, that brought their gunwales well down to the water, came out to try us. We also passed many boats with oars, and strong manned, and no loading, and [they] seemed to stand still when we passed them. We also run round a vessel that was beating to windward in about two miles, which had half a mile start of us, and came in without any of our works failing."

The next day was appointed to make a trip with members of the Company. The wind blew very strong, and none came but Dr. Benjamin Say. They ventured out in the stream, and found that they could work very well. Before the wind they went "amazingly swift," and they returned well pleased, and with an idea that their troubles were nearly at an end. A short time afterward, David Rittenhouse and Dr. Robert Patterson were taken on a four-mile trip and returned, and subsequently, Dr. Ewing, General James Irvine, and Mr. Gray, were favored with the novelty of a steam voyage.

In the joy of his heart at this happy consummation, Fitch exclaims,

"Thus has been effected, by little Johnny Fitch and Harry Voight, one of the greatest and most useful arts that has ever been introduced into the world; and although the world and my country does not thank me for it, yet it gives me heartfelt satisfaction."

For the first time since these persevering experiments commenced, the public journals condescended to

notice their progress. The following paragraph, published in the *Gazette of the United States*, May 15, was republished generally throughout the Union, in newspapers and magazines :

“BURLINGTON, MAY 11, 1790.

“The friends of science and the liberal arts will be gratified in hearing that we were favored, on Sunday last, with a visit from the ingenious Mr. Fitch, accompanied by several gentlemen of taste and knowledge in mechanics, in a steamboat constructed on an improved plan. From these gentlemen we learn that they came from Philadelphia in three hours and a quarter, with a head wind, the tide in their favour. On their return, by accurate observations, they proceeded down the river at the rate of upwards of seven miles an hour.”

On the 16th of June, Governor Thomas Mifflin and Messrs. Samuel Miles, Zebulon Potts, Amos Gregg, Christopher Kucher, Frederick Watts, Abraham Smith, William Findlay, John Hartzell, and Charles Biddle, of the Council, were on board, and took a trip. They were highly pleased, and authorized Fitch to get a suit of colors at their expense. This was done. The bill amounted to £5 6s. 11d. There had been no flags on the steamboat before, and Fitch, naturally anxious for the *éclat* which such a gift would occasion, desired that it should be presented in form. The Governor and Council were too shrewd politicians thus publicly to commit themselves in favor of a scheme which had been the subject of popular derision for four years. Mr. Biddle, the Secretary, informed the inventor that the flags were given by private subscription among the members of the Council, and *not officially*.

Dr. Thornton stated that these flags were afterward

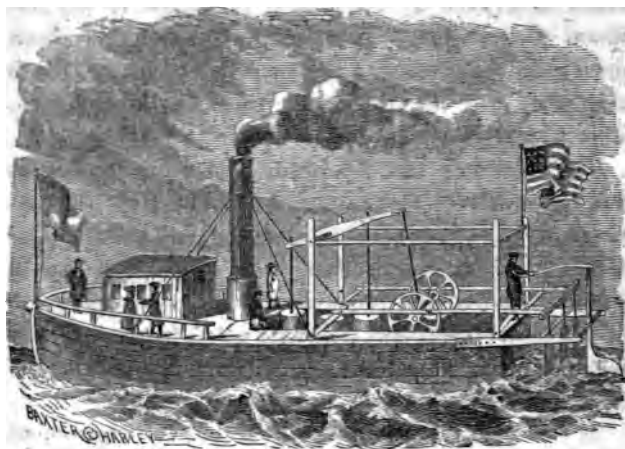
taken to France by Fitch, and presented to the National Convention.¹ A paragraph which has been printed in the American newspapers recently declares that they are in the Patent Office at Washington. This allegation we have been unable to verify.

The boat was now ready for active service, but it was necessary to make some accommodation for passengers. Dr. Thornton wanted the cabin high, and stately. Fitch feared that such a structure would catch the wind, and prove an obstacle to the progress of the boat. There was a dispute about it, which finally resulted in the vanquishment of the projector and the triumph of his adversary.

It was probably about this time that the experiment took place which was described by Dr. Thornton in 1810:

"The day was appointed, and the experiment made in the following manner: A mile was measured in Front street, or Water street, Philadelphia, and the bounds projected at right angles, as exactly as could be, to the wharves, where a flag was placed at each end, and also a stop watch. The boat was ordered under way at dead water, or when the tide was found to be without movement. As the boat passed one flag it was struck, and at the same instant the watches were set off; as the boat reached the other flag it was also struck, and the watches instantly stopped. Every precaution was taken before witnesses; the time was shown to all, the experiment declared to be fairly made, and the Boat was found to go at the rate of Eight miles an hour, or one mile within the eighth of an hour; on which the shares were signed over with great satisfaction by the rest of the Company. It afterwards went eighty miles in a day."

¹ "A short Account of the Origin of Steamboats."



John Fitch's Steam-boat — 1788, 1789, 1790.

The great problem, it was now thought, was demonstrated. The boat was run to Burlington frequently, beating everything which sailed on the Delaware. There were occasional accidents, but they were easily repaired. It is said in the journal that the boat ran as much as five hundred miles between these various accidents; which would give an average of nearly fourteen uninterrupted trips. At this time the steam-boat was run as a regular passenger boat. This is substantiated by some remarks in the journal in reference to an article ridiculing the steam-boat, which was published in the *Franklin Gazette* on the 17th of January, 1791. Although this purported to come from a correspondent, it was thought that Benjamin F. Bache, the proprietor of the paper, ought to be held

responsible for it.' A certificate of B. F. Bache, in favor of the performance of the boat, dated 16th of June, 1790, was referred to, and the injured party thus proceeds :

"Mr. Bache has taken *many* trips in the boat, on his own business, to Burlington and other places, without offering us a single sou for the favour ; and from such customers, and others like him, we actually run our boat last summer to a disadvantage ; but I think it is ungenerous in him to abuse us for it, even if he claims Dr. Franklin's share in Rumsey's steam-boat."

We find further and complete confirmation of the usefulness of the boat in the following advertisements, copied from newspapers published at the time :

THE STEAMBOAT

is now ready to take passengers, and is intended to set off from Arch street Ferry, in Philadelphia, every *Monday, Wednesday,*

¹ The following extract from the article in question will serve to give an idea of its nature :

"A boat on this construction, barring all accidents of breaking paddles, cranks, gudgeons, watchwheels, chains, Logger-heads, cocks, valves, pins, bolts, pistons, cylinders, boilers, condensers, air-pumps, and God only knows how many more useful parts, which we have omitted, would *almost* stem the tide of the Delaware ; and the net proceeds of the monthly expences would not exceed those of the income of above ten pounds ; so that in one year there must be a clear saving of £120 — no matter to whom, so that it is saved.

"And to compleat the machinery of a Boat on this plan, of ten or fifteen tons Burthen, and keep her in tolerable order, may be done at a very moderate expence ; as one master copper-smith, with three or four journeymen, a master Blacksmith, with as many Journeymen, aided by an ingenious watch and clock maker, provided they are industrious, will be amply sufficient for the purpose."

and Friday, for Burlington, Bristol, Bordentown, & Trenton, to return on Tuesdays, Thursdays, and Saturdays. Price for passengers, 2/6 to Burlington and Bristol, 3/9 to Bordentown, 5s. to Trenton.

June 14.

tu-th, s-tf.

Pennsylvania Packet, June 15, 1790. Published also in the *Federal Gazette*, June 14th, 17th, 19th, 22d, and 24th.

THE STEAMBOAT

sets out to morrow morning, at ten oclock, from Arch Street Ferry, in order to take passengers for Bristol, Bordentown, and Trenton, and return next day.

Philad., July 26th, 1790.

Federal Gazette.

THE STEAMBOAT

sets out from Arch street ferry on Sunday morning, at eight oclock, for Chester, to return the same day. And on Thursday following, at seven o-Clock, for Wilmington and Christeen Bridge.

July 30, 1790.

Federal Gazette.

The Steamboat

sets out from Arch Street Ferry on Thursday next, at Seven o Clock, for Wilmington and Christian Bridge.

Aug. 2, 1790.

Federal Gazette.

Published also Aug. 4th.

THE STEAMBOAT

sets off to morrow morning, from Arch St. Ferry, at 10 oclock, with passengers for Burlington; and on Sunday, at eight oclock, for Chester, and to return same days.

aug 11 dtf

Pennsylvania Packet, Aug. 11, 1790.

Published in the *Federal Gazette*, August 11th, 12th, 13th, and 14th.

THE STEAMBOAT

sets off from Arch St. ferry to morrow morning, at seven oclock, and on sunday at eight oclock, with passengers for Burlington, and returns same days.

August 18th.

Federal Gazette.

Published on the 19th, 20th, and 21st.

THE STEAMBOAT

sets off this day, from Arch St., at 10 oclock, for Burlington and Bristol Bordentown & Trenton, and returns to morrow.

Aug. 26, 1790.

Pennsylvania Packet.

Published in the *Federal Gazette* on the 26th, 27th, and 28th.

THE STEAMBOAT sets off from arch st. to morrow for Chester, & returns same day.

Aug. 28, 1790.

Pennsylvania Packet.

The Steam-boat

will set out this morning, at 11 oclk, for Messrs. Gray's Garden, at a quarter of a dollar for each passenger thither. It will afterward ply between Gray's and middle ferry, at 11d each passenger. To morrow morning, Sunday, it will set off for Burlington at eight oclock, to return in the afternoon.

Sept. 4, 1790.

Pennsylvania Packet.

THE STEAMBOAT

will set out from Arch street wharf on Sunday, the 12th inst., at 8 o'clock in the morning, for Chester, to return the same day.

Sept. 10th.

Federal Gazette.

Here are no less than twenty-three advertisements, counting all the days of publication, specifying the times at which no less than thirty-one trips would take place, counting each passage from Philadelphia to the place of destination as one. If the steam-boat had done no more than make the passage on the days designated, it would have passed over thirteen hundred

and eighty miles. But as the city was small, and the performances of the boat a matter of notoriety, it is quite probable that from June 14th to September 10th, and perhaps for some weeks afterward, the vessel ran steadily. To Trenton was considered thirty miles, to Burlington twenty, to Chester fifteen, to Wilmington thirty. If we average all the trips at twenty-five miles each, the steam-boat must have run, before she was laid up, from two thousand to three thousand miles. That the voyages were made without material delays, appears by Fitch's MS. journal. He says that if the safety-valve had not been overloaded by Voight, in defiance of entreaty, there would have been no accident during that summer. "The axle-trees broke twice; there was nothing but these accidents which could not be repaired in a single hour or two." The grate was burnt out, and had to be renewed. They beat "the sail-boats on the river, three to one;" but their enemies took advantage of every accident to spread reports against the work. "The boat run five hundred miles between these accidents."

The following account of the performances of the boat is found in the New York Magazine for 1790, page 493.

"Extract of a letter from Philadelphia, August 13.

"Fitch's steamboat really performs to a charm. It is a pleasure, while one is on board of her in a contrary wind, to observe her superiority over the river shallops, sloops, ships, &c., who, to gain any thing, must make a zigzag course, while this, our new invented vessel, proceeds in a direct line. On Sunday morning she sets off for Chester, and engages to return in the evening—40 miles. God willing, I intend to be one of the pas-

sengers, were it only to encourage American ingenuity and the fine arts. Fitch is certainly one of the most ingenious creatures alive, and *will certainly make his fortune*. I am told he is now in contemplation to build a steam vessel on a larger scale, which may be capable of carrying freights and passengers to the West Indies, and even to Europe. One great advantage I can foresee in these voyages, which is, that the steam ship can make progress in a calm, when other vessels must lie motionless. How she would behave in a gale of wind, must be left to experience to determine. Having no sails, masts, or top hamper, to lay too or scud under, it is probable she might at such time be in great Jeopardy."

The trip made to Gray's Ferry, and on the Schuylkill, September 4th, was doubtless that which was witnessed by Rembrandt Peale. He gives his recollections in a letter to a member of the Historical Society, dated January 13, 1848. It will be seen that Mr. Peale gives the date of the spring of 1785 as the time when he saw the boat. This was before it was thought of. Mr. Peale has no doubt been deceived in his memory of the *time* by the lapse of many years:¹

"In the spring of 1785, hearing there was something curious to be seen at the floating bridge, on the Schuylkill, at Market street, I eagerly ran to the spot, where I found a few persons collected, anxiously gazing at a shallop at anchor below the bridge, with about twenty persons on board. On the deck was a small furnace, and machinery, connected with a complex crank, projecting over the stern, to give motion to three or four paddles, resembling snow shovels, which hung into the water. When all was ready, and the force of steam was made to act, by means of which I was then ignorant, knowing nothing of the nature of a piston except in a common pump, the paddles began

¹ Collections of the Historical Society of Pennsylvania, Vol. I., No. 1, page 34.

to work, pressing against the water *backwards* as they rose, and the boat, to my great delight, moved against the tide, without wind or hand; but in a few moments it run aground at an angle of the river, owing to the difficulty of managing the unwieldy rudder, which projected eight or ten feet. It was soon backed off, and proceeded slowly to its destination, at Gray's ferry."

Dr. John Ewing certified that on the 1st day of May, 1790, the steam-boat "went six miles an hour, without wind or tide." David Rittenhouse also made a statement that he was on board the boat on the 4th of May, 1790, when it "was propelled at the full rate of six miles an hour, solely by steam."

General James Irvine, Vice-President of the State of Pennsylvania, corroborated the statement of Dr. Ewing, having been on board the steam-boat at the same time.¹

Lewis Rue and John Shaffer gave a certificate that on Saturday, the 5th of June, 1790, they left Philadelphia in the steam-boat about four o'clock in the morning, and went to Trenton Landing, and to Lambertville, fifteen miles above Trenton. They returned to Philadelphia by half-past five o'clock in the afternoon. They stopped one hour at Lambertville and other places. The current was against them eight or nine miles before they reached Lambertville. There was a fresh wind against them all the way on their return, and the tide was against them for seven or eight miles before reaching Philadelphia. The space

¹ General Joseph Bloomfield, of New Jersey, testified, before a Committee of the Legislature of New York, in 1814, that he had frequently been a passenger on Fitch's boat on the Delaware.—See *New York Review*, Vol. IV., page 148.

passed over by the boat in twelve hours and a half was ninety miles, and the speed was, on the average, seven miles and a half an hour. Probably with the tide, on the upward passage, it was nine or ten miles an hour. Contrast this with the performance of Fulton's boat, the Clermont, on the Hudson, seventeen years afterward, which occupied thirty-two hours running time, to go a distance of one hundred and fifty miles,—about four miles and three-quarters an hour,—and how great is the triumph of the original inventor! "Had they started together, over the same course, at the same time, Fitch's boat would have reached Albany fifty-two miles in advance."¹ Fitch had an engine manufactured in this country by common blacksmiths, under his own supervision, at a time when the principles and the relative forces of the different parts of the steam-engine were almost unknown. Fulton employed an imported engine, built in England, by Bolton and Watt, on their improved principles. Fulton told Dr. Thornton that it was impossible to make a boat to "go more than *five* miles an hour in *dead* water." He "offered me," said Dr. Thornton, "\$150,000, if I would make one that exceeded it. I agreed to his proposal at once, but he declined to write the terms. Our boat [Fitch's] went at the rate of *eight* miles an hour, in the presence of witnesses yet [1814] living."²

The following, which was published some time since in the *New York Leader*, is, without doubt, the letter

¹ Whittlesey.

² See United States Patent Office Report for 1850, Part I., page 370. "Thornton's Account," &c.

in which Fulton's offer was made. The place from which it is dated was Joel Barlow's residence, near Washington :

KALORNA, January 9, 1811.

TO DR. THORNTON :

DEAR SIR :—Having an unfortunate bile, and being altogether so unwell that I shall probably not be able to go out of the house in a fortnight, I shall be happy to have some conversation with you on your steamboat inventions and experience. Although I do not see by what means a boat containing one hundred tons of merchandise can be driven six miles an hour in still water, yet when you assert your perfect confidence in such success, there may be something more in your combinations than I am aware of. As such success would be of infinite national importance, I should feel disposed, on the principles of patriotism, to give the essay every aid, at the same time to make such an arrangement as would secure you ample fortune. To prove your principles by practice, it has occurred to me that one of two things may be done: either that you find some one to join you, with funds, to build the boat, and if you succeed to run six miles an hour in still water, with one hundred tons of merchandise, I will contract to reimburse the cost of the boat, and to give you one hundred and fifty thousand dollars for your patent; or, if you can convince me of the success by drawings or demonstrations, I will join you in the expenses and profits. Please to think of this, and have the goodness to let me see or hear from you as soon as possible.

I am, sir, your most obedient,

ROBERT FULTON.

That Fulton was incredulous that as high a rate of speed as six miles an hour, in still water, could be attained, is not strange. He had no right to expect a better performance from the experience which he had with the "Clermont" and the "Car of Neptune."

Some months after the foregoing letter was written, the latter boat attained, under favorable conditions of tide, a speed of seven miles and two-thirds per hour; which remarkable circumstance was thus chronicled in the *Boston Weekly Messenger* of November 8th, 1811:

RAPID TRAVELLING!

NEW YORK, OCT. 24.

The steamboat "Car of Neptune," which left this city on Saturday evening last, at five o'clock, arrived at Albany in 20 hours. She returned this morning in 22 hours—equal to 330 miles in 43 hours. Let foreigners, who say we have no talent for improvement, point out where there is any mode of conveyance equal to this! In what country are there so many enjoyments combined in one great polytechnic machine, and mounted with wings, as this, which wafts passengers as by enchantment between the cities of New York and Albany?

To our countrymen, then, and our arts, let justice be liberally and honestly measured out.

CHAPTER XVIII.

COMMENCEMENT OF THE STEAM-BOAT PERSEVERANCE.

THE practicability of the invention having now been tested, the new Company was consolidated with the old, and preparations were made to build another boat, so that two vessels moved by steam could be sent to Virginia, in order to meet with the requisitions of the law in favor of Fitch passed by that State.¹ The time was short, as the law would expire unless the specified conditions were fulfilled by the 9th of November, 1790. Prompt action was taken. A levy of £10 was made upon each member. All professed themselves willing to pay it, but the collection of the amount was not an easy matter. Fitch feared that this difficulty would arise, and he represented to Edward Brooks, the Treasurer, and others, that the building of the boat ought not to be commenced until the necessary funds were in hand. This prudent suggestion was unheeded. The vessel was contracted for, and the work was begun. A proposition was made by the inventor that he should go to the Western country to seek subscriptions; but that plan was not adopted. It was shown to General

¹ The great value of the Virginia law was, that it secured exclusive rights to the steam-boat in the Western waters—the Ohio and its tributaries. In the bounds of Virginia were embraced at that time the present States of Kentucky, Ohio, and the North-Western Territory.

Gibson, of Allegheny, and Colonel Mastel, who gave it their approbation in words. An application to members of the Legislature of Pennsylvania from the western counties was not as successful. Mr. John Hoge, Representative of Washington and Fayette, and James Findlay and Albert Gallatin, of Fayette, were not courteous, and they treated the proposition with disdain.

In the estimate then prepared, it was calculated that ten boats might be necessary for use on the Western waters, and that they would cost about two thousand dollars each. Chagrined at the result, application was made to General Gibson, to induce him to become a partner in the enterprize of building a boat at Pittsburg. The following was the letter containing this proposal:

Worthy Honoured Sir:

The subscriber humbly begs leave to demonstrate to you the unaccountable difficulties and embarrassments which have been and still are thrown in his way, which no man acting upon natural principles could even suspect.

The embarrassments of a man in my station of life, to raise £3000 in so short a space of time as I have done, and that upon so unpopular and uncertain a scheme as I have been upon, cannot be supposed to be small. But since I have waded through all these difficulties, and have ascertained the scheme to meet with such cold reception, as I do, from the very men who are to be benefited by it, was never suspected by me.

To tell you, Sir, that some of the Gentlemen from your Country, whome I waited upon to obtain their Certificate and Countenance, would not even deign or show the least desire of informing themselves of the principles which I ment to go upon; as if they were afraid that they should be convinced that it was their duty to support me; and others, who did say that they

could not assert that the plan was equatable and just, although it was clearly stated, as evident as any problem in Euclid, that the Ballance was [not] against the steamboat company, yet refused to sign it on them principles.

Others refused to sign it because they could not say that they thought it was the duty of every good citizen to render real service to themselves, their Country, and their Nation.

Such base injustice to the man who has spent his whole fortune, with five or six years, to serve these very men, and the world of mankind at large, must be sensibly felt by a man of feelings; yet, Sir, I dispise such petty imbarassments as the whole members on the waters of the Mississippi can throw in my way.

But should we say that your Country should be deprived of so valuable a machine for Fourteen years, the resentment would be just. But it is not that part that I mean to act, but upon more noble principles; and convince the little, suspicious minds, that I am not capable of injuring myself for the sake of injuring others.

Worthy Sir, I ask no more good men in that Country than what would have saved Sodom and Gomorrow from Fire and Brimston, to Effect the greatest revolution which that Country ever did or ever will experiance, and am confident I have found one in you; and permit me to return you the thanks which is due you from you Country, and adress you on the scheme which I propose to persue.

Sir, I am determined that the Navigation of the Mississippi and Ohio shall be made easy, whether the Western people will have it or no.

I really Pitty men who have worried at the Oar these six thousand years past, and am detirmined to releive them; and you may be a principle promoter of so great an event, which will cause inconceivable revolutions in your Country.

I do know that the liberal principles on which I go will command sufficient money for the present to carry it into effect.

This is, Sir, to request to think of the matter, and consult with yourself, before my arrival at Pitt, whether you can patron-

ise the scheme for 20 shares, or in partnership with another, so as to build a boat for that place.

If you can, sir, I pledge my reputation, and you may esteem it as coming from an honest man, that I will ascend the Ohio river one hundred miles in twenty four hours.

I trust that you will pardon this intrusion, and hope to be esteemed by you,

Your Most Devoted,

Humble Servant,

JOHN FITCH.

The honorable General Gibson.

This proposal was not agreed to by General Gibson, and the West was thereby retarded in the progress which the steam-boat would have effected, and which the same invention has since so wonderfully aided in producing.

The work upon the Perseverance continued, and it was hoped that it would be finished in time to save the benefit of the Virginia law. This expectation was disappointed. A violent north-east storm arose. After having blown from that quarter for a day and part of a night, the wind suddenly shifted to the north-west. The boat was broken from her moorings, and drifted upon Petty's Island, opposite the upper part of Philadelphia. The tide was very high at the time, and the Perseverance was driven so far upon the land that it was impossible to get her off for ten or twelve days. There was now no possibility of complying with the law of Virginia, and that project was abandoned.

Both boats were now laid up for the winter. The Act of Congress of April 10, 1790, entitled "an Act for the encouragement of useful arts," was not ne-

glected. It vested the granting of exclusive rights to inventions in the Secretary of State, Secretary of War, and Attorney-General. To those officers the following petition was presented :

To the Honorable, the Secretary of State, the Secretary of War, and the Attorney General,

The Petition of *John Fitch*, of the City of Philadelphia, humbly sheweth :

That your Petitioner, in the Spring of the Year One thousand seven hundred and eighty five, conceived the idea of applying steam to the purposes of propelling vessels through the water ; that, fully satisfied in his own mind of the practicability of such a scheme, of its great immediate utility, and the important advantages which would in future result therefrom, not only to America, but to the world at large, if the scheme could be carried into effectual operation, he divested himself of every other occupation, and undertook the arduous task ; not doubting that when perfected he should be amply rewarded. In his first attempts to procure assistance from Congress and the Legislatures of many of the states, from the peculiar situation of their finances, and the seeming impossibility of the success of the scheme, he met with no relief. Not entirely discouraged by those dissappointments, he continued his application to his project, and prayed several of the states for an exclusive right for the use of fire and steam to navigation ; that New Jersey, New York, Delaware, Pennsylvania, and Virginia granted him an exclusive right, agreeably to the prayer of his Petition, for fourteen years ;

That the impracticability of procuring experienced workmen in America, your Petitioner's total ignorance of the construction of a steam-engine, together with the necessary deviation from the form described in books, in order to accommodate its weight and bulk to the narrow limits of a vessel, have caused him not only to expend about eight thousand Dollars in successive experiments, but nearly four years of some of his grants have expired before he has been able to bring his engine to such a degree of perfection as to be carried into use ;

That having at length fully succeeded in his scheme, proof of which he is prepared to offer, he trusts he now comes forward, not as an imaginary projector, but as a man who, contrary to the popular expectation, has really accomplished a design which on examination will clearly evince the many and important advantages which must result therefrom to the United States; some of which your petitioner begs leave to enumerate:

The western waters of the United States, which have hitherto been navigated with great difficulty and expence, may now be ascended with safety, conveniency, and great velocity; consequently, by these means an immediate increased value will be given to the Western Territory; all the internal waters of the United States will be rendered much more convenient and safe, and the carriage on them much more expeditious; that from these advantages will result a great saving in the labour of men and horses, as well as expence to the traveller.

Your Petitioner also conceives that the introduction of a complete steam engine, formed upon the newest and best principles, into such a country as America, where labour is high, would entitle him to public countenance and encouragement, independant of its use in navigation. He begs leave to say that the great length of time and vast sum of money expended in bringing the scheme to perfection have been wholly occasioned by his total ignorance of the improved state of steam engines; a perfect knowledge of which has not been acquired without an infinite number of fruitless experiments; for not a person could be found who was acquainted with the minutiae of Bolton & Watt's new engine; and whether your petitioner's engine is similar or not to those in England, he is at this moment totally ignorant, but is happy to say that he is now able to make a complete steam engine which, in its effects, he believes, is equal to the best in Europe, the construction of which he has never kept a secret;

That, on his first undertaking the scheme, he knew there were a great number of ways of applying the power of steam to the propelling of vessels through the water, perhaps all equally effective; but this formed no part of his consideration, knowing that if he could bring his steam engine to work in a boat, he

would be under no difficulty in applying its force; therefore he trusts that no interference with him in propelling boats by steam, under any pretence of a different mode of application, will be permitted. For should that be the case, the employment of his time, and the amazing expence attending the perfection of his scheme, would, whilst they gave the world a valuable discovery, and America peculiar and important advantages, eventuate in the total ruin of your Petitioner; for a thousand different modes may be applied by subsequent navigators, all of them benefitting by the labour and expence of your Petitioner, and sharing with him those profits which they never earned. Such a consequence he is confident will not be permitted by your honorable body.

Your Petitioner therefore prays that your honors will take the subject of his petition into consideration; and by granting him an exclusive right to the use of steam navigation for a limited time, do him that justice which he conceives he merits, and which he trusts will redound to the honor and add to the true interests of America; and your Petitioner, as in duty bound, shall ever pray.

JOHN FITCH.

New York, 22nd June, 1790.

This petition was preferred as a matter of form, but, the triumph of the steam-boat was so complete, that the elated inventor even hoped that *his* case might be made an exception to the law "to promote the progress of useful arts;" and knowing that the members of Congress, who were then assembled at New York, were cognizant of his perfect success, he ventured to ask the privilege which he craved.

July 1, 1790.—A petition of John Fitch was presented to the house, and read, praying that an exclusive right may be granted to him to the use of steam to navigation in the United States for a limited time.

Ordered the said petition to lay on the table.¹

¹ Journal of the House of Representatives of the United States, Session of 1790, page 155.

Friday, July 2, 1790. — The Petition of John Fitch was read, stating sundry improvements which he has made "in applying steam to the purpose of propelling boats or vessels through the water," and requesting "a law in his favour, *independent* of the General one now in force."

Ordered, that this Petition lie on the table.¹

Failing in this endeavor, he again addressed the Commissioners. Another petition was presented to them on the 22d of November. The next day, they appointed the first Monday in February, 1791, to hear all the applicants for patents for inventions in which steam was used for a motive power. These were John Fitch, James Rumsey, and John Stevens, who asked patents for steam-boats and steam machinery, and Nathan Read and Isaac Briggs, for steam-wagons. During this delay, attempts were made to induce new parties to aid in the steam-boat enterprise. In that spirit the following letter, curious for the estimates which it contains, was written to Robert Morris, the eminent financier, patriot, and statesman. The epistle was not transmitted until three months after its date.

Worthy Honored Sir:

The subscriber humbly begs leave to address you on a scheme of the first importance to yourself and Country.

I know, Sir, I stand on the most unfavourable ground to propose any thing new; for, by unforeseen and unavoidable events, the City of Philad. have become my Enemies.

The disgust which new projects gives to many, my despicable appearance, my project being calculated to make the *Watermen* my Enemies, the great interest which Rumsey has made against me, and the great numbers who gave their opinions against my

¹ Journal of the Senate of the United States, 2d Session, page 144.

scheme, who are loth to have their judgments called in question, it may be supposed that I have scarcely a friend left.

The most infamous Characters or scheme, surrounded with friends, is applauded; the greatest virtues, surrounded with Enemies, is treated with contempt.

These hints, sir, will undoubtedly satisfy you that I stand on more unfavourable Ground than I ought to do; but I feel myself perfectly easy while I know the candour and abilities of Mr. Morris.

I wish, sir, to propose a trading House at New Orleans; and doubt not but if Mr. Morris should patronize it, Mr. Leamy, the Spanish Consul, would give it Countenance, and probably Support.

The great imbarassments of Navigating the Mississippi has undoubtedly prevented that place from flourishing in proportion to the extent of country which must finally traffic there.

The amazing expence of bringing back the People who transport the produce down that River, makes it truly discouraging to the Exporter, and a natural tendency of Indolence in the planter. From the Luxurancy of the Soil, the number of Inhabitants, it ought to be supposed that New Orleans should be the largest City in North America, and the greatest trade carried on there; which, was the Navigation made easy, I apprehend would suddenly take place.

In the first place, I wish to state the difference between the present mode of navigation and navigating them waters by steam, and make an estimate of one Boat, for one year, of 50 Tons Burthen, and to compare it with Dr. Flowers', Con^l Barber's, and Capt. Wood's Certificates.

I suppose a steamboat of 50 tons burthen, which would make four trips in a year to Kentucky, or the Illinois; and suppose the Boat to be Double manned, and to recon nothing for the Boats now in use on that River.

I estimate the steam boat, when compleat for the voiage, to cost 2500 Dollars; but say £1000; and to keep it in perpetual repair, say it will cost £100 per year; which Boat transports 200 Tons pr year.

The interest of the money is	£60 00
The repairs.	100
Wages of 4 men, say 400 Dollars	150
Enginear, say	100
Provision and necessarys, say.	100

In all, is £510

For Transporting 200 Tons ; which reduces the price to less than 2/7⁴ per hundred weight.

To transport 200 tons, according to Dr. Flowers' estimate, amounts to £11,850 ; which leaves a Ballance in favour of the steamboat of £11,340 for one boat only, for one year ; and at this day I presume that less than ten or fifteen boats would not do the business of that river.

We do know that we can make these Boats to ascend the Mississippi. We also know that we can make our works as durable as millworks ; and by having odd limbs on board, no part can fail but may be repaired in two hours.

These Boats, by carrying back the People at reasonable rates who transports the produce down the River, must soon make an amazing oda in the Trade of that Town ; for the inhabitants of that country could at this day, with the same industry, export as much as the State of Pennsylvania, East of the Mountains ; and as they are at this time bear of all foreign marchandize, much of their money would probably be laid out that way.

An article of agreement, which I doubt not but will be executed by the steamboat company, will entitle me to convey one half of the said boats, as may be erected by public subscription, on generous principles, on them waters.

The owners of those Boats must have many and great advantages over other merchants in that place.

I propose to reside there myself, and become a Spanish subject ; and hope to meet with indulgencys as such.

I have already a pretty extensive acquaintance on the Ohio, and shall this winter make it much more so ; and could they be satisfied that I was supported by people of property, doubt not but that a principle part of the Trade of that Country might be

ingroced by the House; and think it may be worthy the attention of the most respectable Gentlemen to persue it.

This, Sir, will probably cause a revolution in the Western World more astonishing than the introduction of arts in Muscovy by Peter, and worthy the notice and consideration of Mr. Morriss; and pray that he may have the same secret pleasure and reward as Great Peter of Muscovy had in rendering real service to his Country.

Which is the sincere wish of

Your ever Faithful

Humble Servant,

JOHN FITCH.

20th Sept., 1790.

The Honorable Robert Morriss, Esq.

P. S.—If Mr. Morriss should find it inconvenient for himself to engage in this business, he perhaps might favour the scheme so far as to recommend it to some of his acquaintances, or to give his opinion where the scheme may be defective, and to give his advice how it ought to be persued.

J. F.

These estimates, he afterwards said, were probably too high. He had been informed that, on account of quick and sudden falls of water, it would be dangerous to use boats of fifty tons; which, *by their size*, would be prevented from taking advantage of eddies, as smaller boats might. He thought that it would be impossible to navigate the Mississippi in boats of larger capacity than twenty-five tons. The expense would be thereby increased, as the cost of running the smaller boat would not be reduced in proportion. The latter would only save the labor of twenty men, whilst the former would dispense with the care of forty-five; and the expenses would not be £50 per year different.

Shortly afterward, Fitch commenced to write a long statement to the Commissioners of Patents, in which

he set out his claims in full, with the evidence he relied upon, and argued very conclusively in regard to the priority of his invention, and the injustice of giving rights to others, who had made a different application in the mode of propulsion from his own.

He now found himself deserted by all the members of the Company but three or four. And in order to regain their good-will, and continuance of patronage to the boat, he wrote them an address, as follows :

TO THE STEAMBOAT COMPANY.

Gentlemen : the convulsed situation of the Company throws every thing into the most tottering situation.

After the many thousands which you have expended to bring forward the most useful art that was ever introduced into the World, and even after you have perfected it, it seems that you are amazed at what you have done, and lost in contemplating, in thinking, how the world will gaze on the virtuous Few who have so nobly and liberally rendered such essential service to their Nation.

And shall we, after we have perfected the scheme, Eclipse our noble acts by leaving our works half done; because we do not wish, or are not protected in carrying on business at the distance of the Mississippi?

I know that the disjointed situation of our Co. will not permit us to strike another stroke till some new arrangement shall take place.

Permit me to suggest one proposal more, which is, Once more to solicit Congress to give us a tract of Land, to enable us to bring into practise what we have perfected.

We do know that we can assend the Mississippi; we also know that we can make our Works as dureable as Mill Works, and that we can navigate them Waters at about one tenth of the present expence of Navigation; which Improvement will be worth three such Tracts of Teritory as is on the Western Waters added to our Empire.

That we have brought our scheme so far to perfection as to convince the World that a steam engine may be introduced into a Boat to advantage, is one of the greatest consolations. But that the time necessarily employed in the pursue has extended beyond the limit unfortunately assigned by the state of Virginia, is the cause of our greatest greiff. Our expectations of extensive profits, you well know, were built on exclusive rights to navigate the Western Waters.

The immense difficulties we have had to encounter in acquiring the knowledge of the true principles of a steam engine, together with the obstructions thrown in our way by the claims set up by Rumsey and his friends, waisted that portion of time which was allotted by the state of Virginia to perfect two Boats for the waters of that state, agreeably to the terms of the law granted in my favour.

You know that one Boat has been compleated, and that another was nearly ready when the terms of the law expired. Hard, indeed, were the terms of that law; but I had no conception at the time of accepting them that it would have employed so great a length of time merely to acquire the art of making a steam engine—an art familiar in England, but of which all the artizens I could ever converse with in America, entirely ignorant. Thus we had to explore an unbeaten path, and did not ascertain the true course until we had wandered into a thousand wrong Rodes.

These attempts, you too well know, have been attended by an enormous expence; and failing at last in our great object of the Western Waters, your spirits of exertion I sadly perceive begins to fail. No exertions of mine have been wanting, but the fates have been against us. What are we to do? Are we to relinquish the once pleasing prospect of success, and quietly sit down under our Losses? or shall we make one more Bold effort, and cast ourselves upon the Honour and generosity of our Country?

I well know that we have opponants, and powerful opponants, too; but I flatter myself that our Rights will be viewed through the medium of justice, rather than interest; that our Country will perceive that, having first promulgated the Idea of steam-boats, in a manner not to be lost, as my Petition was presented

to Congress in August, 1785, and having carried the Idea into effectual operation, will secure me every right and title which the most sanguine inventor could hope for.

If any were before me in thought, it was in thought only; and my discovery was the only one that was made known to the world; and had I dropped into oblivion, my discovery must have ever remained on record; whilst those of any other pretenders ever concealed until mine made a noise in the world, might have sunk, with their Inventors, into everlasting silence.

On this principle you know that I have contended my universal Priority; and further, that no subsequent Pretender could come forward with propriety, under pretence of a variation in the mode of applying the power; for I assert it as fixed principle, that the invention is in *the thought of applying the action of steam to navigation*, and not in the *mode of effecting it*; otherwise, my whole project might be wrested from me by a subsequent Pretender, nearly by the plea of applying the power of steam in some other mode than that which I first began with.

So sensible were all the Legislatures who granted me Patents of the force of this reasoning, that they all gave me the exclusive right of steam to Navigation.

Under this Patronage I began my Works, and you advanced your money, little expecting the difficulties that we had to encounter; nearly £4000 have been expended, and your prospects are vanishing away.

I feel distressed at the thought of asking you to advance more, but more distressed at the thought of abandoning a scheme now so fully ascertained.

You will ask me what I propose. I will tell you, Gentlemen, my views. They are still extended to the waters of the Mississippi.

Could I gain your permission, I would apply to Congress for patronage to a scheme which cannot fail to give an immense increase of value to the western territory. Should I take a boat from hence to the mouth of the Mississippi, and thence, by the power of steam, ascend those waters to the Rapids of the Ohio, I should conceive that I conferred the greatest benefit, in a pecuniary sense, that America ever experienced; and I have no

doubt but Congress would grant me, by way of incouragement, a Tract of at least 50,000 acres, as a Recompence—small, indeed, when compaired with the amazing advantages to that Country.

Would you, Gentlemen, so far countenance my application as to support me hear for only three months,—for my all is now expended, my last Certificate is sold and gone,—I will employ that time in soliciting the grant from Congress.

Gentlemen, I would ask on the special terms of carrying our new Boat to the Rapids. Under such a promise on the part of Congress, I have no doubt but I could form a new Co., should the old one decline the expence. You, it is true, have spent largely on my scheme; but I have dissipated the last farthing I have in the world, yet am not dismayed, if my Country will yet take me by the hand.

I have given my country a most valuable discovery, on the 30 of August, 1785, for which I have received no compensation; and I doubt not but common justice will induce them to do something for me; especially when they can do it for the benefit of our Empire.

Another inducement which urges me to persue this scheme is, to put it out of the power of future Generations to make excuses for the present one. And if I should die in penury, want, wretchedness, and Rags, that my country may have no excuse, and that I may have the secret pleasure in the contemplation of receiving real pitty from future Generations.

All of which is humbly submitted to the Company,

25 Dec., 1790.

By
JOHN FITCH.

The want of continued employment seems to have led the active mind of Fitch, about this time, into a new field. We have hitherto stated how his feelings became prejudiced against the Christian religion in consequence of early impressions. The rigid discipline to which he was subjected by his father, doubtless had its influence. The odium which he incurred

from the Methodists of Trenton, upon account of his working on the Sabbath during the busy times of the Revolution, when the repairing of arms for defence was considered a necessity, must have excited a temperament which could not brook unmerited censure. The refusal of leading members of the Methodist persuasion in New York to even see him, when he arrived at that port in a cartel-ship, after his captivity, no doubt completed his disgust at those who professed Christianity. He became a Deist, in the sense which now distinguishes Unitarianism. The Socinian doctrines which he advocated were embraced by Voight and others. They believed that there was one mighty God, the creator and ruler of the universe, but they rejected the tenet that Jesus Christ was his son. The latter was regarded by Fitch and his friends as a great teacher, but not as inspired. The estimate which the steam-boat builder placed upon the Saviour is shown by the following extract from his writing, which is a specimen of humility mingled with strong self-conceit :

“My despicable appearance, my uncouth way of speaking and holding up extravagant ideas, and so bad in address, must ever make me unpopular ; but was I a hansom man and a good Riter, I could do now more than Jesus Christ or George Fox did.”

The expressions of opinion upon the subject of religion which were made by Fitch and Voight, met with approval by some persons to whom they were spoken. It was resolved to form an association for the propagation of such doctrines, and to call it “the Universal Society.” In order to detach it from Christian influ-

ences, the members agreed to count the year from the institution of the club. This took place on the 25th of February, 1790—at least the first recorded minutes were of the proceedings upon that day. Fitch very strenuously endeavored to have the anniversary fixed January 21st, so that, in future celebrations of the important event, he might have the “secret pleasure” of knowing that they were celebrating his birthday. The members of the Society, who knew not the hidden vanity which impelled the suggestion, could not see any reason for adopting a day which had no associations connected with it; and to the “secret chagrin” of the conceited proposer, they negatived a proposal for which they could discover no argument. The Universal Society began to meet regularly in the autumn of 1790, and there were then thirty members. The code of morals inculcated by its laws was very strict. A breach of honor, or the want of honor, was to be punished with great severity, and the penalty was to be nothing less than expulsion. Any offence against the laws of God and nature was to be similarly reprobated, and the founders of the association seemed to think that the dread of such measures would be sufficient to restrain the evil passions of their associates. The Society met weekly, for instruction, conference, and debate upon moral and philosophical topics. Subjects were also assigned to the members to be treated upon in essays. The following are some of the questions thus submitted. Those marked with an asterisk were proposed by Fitch:

* Is a plurality of wives right or wrong?

* What are the duties of men, & how are they to be known?

* Is there any such thing as conscience, or does not what we call conscience arise altogether from education?

* Is there any Religion which can be framed useful to society? If there is, on what principles ought that religion to be founded?

Is there a Providence?

Are there any punishments or rewards after this life?

* Did all mankind proceed from one man & woman?

Are the Generality of mankind rendered more happy or miserable in this life from a conviction that they shall exist in a future state?

** Can suicide be a noble act in any case whatever?*

* Ought Duelling to be countenanced by Government, or not?

Are the Prayers of finite creatures of any avail with Deity?

Are not men & other animals composed of the same kind of matter?

* What make North America colder in winter than other countries in the same degree of North Latitude?

* What was the passion of Envy given to men for, or what use could it be of in this world?

Have any passions at all been given to men?

How comes it that men are more susceptible of reason than other animals?

* Which do we derive the greatest benefits from, our Friends or Enemies, as to useful lessons in life?

* Do not all men enjoy an equal share of happiness in this world?

* Why is the Eastern part of our Continent more sandy, rocky, broken, and Barren than it is west of the Alleghany mountains?

Would not less sanguinary Punishments than that of death, for capital crimes, be of more extensive utility?

Why are particular species of animals more obedient to men than to any other?

Can a man love a being whom he has never seen?

What is matter?

What is the cause of attraction?

Should a magnetic needle made with two points, thus, , with a brass pointer between the points marked, be less liable to variation than that in present use?

* Is life an element, or not?

Is gratitude due from the young to their parents, for their care and protection in raising and nursing them when not able to protect themselves?

In March, 1791, the Rev. Mr. Palmer, who had been a preacher of the Baptist Church in Philadelphia, was dispossessed of his pulpit in consequence of heretical teaching. Some followers seceded with him from the congregation. They obtained a room in Church Alley, and on the succeeding Sabbath Mr. Palmer preached from the 6th chapter of Malachi, 8th verse: "Love mercy, deal justly, walk humbly before our God." The Universal Society united with his followers on that occasion. The hall was crowded; and Mr. Palmer, taking advantage of the prepossession of his audience, denied the divinity of Christ in the course of his sermon. This meeting emboldened the participators, and it was announced in the newspapers that on the succeeding Sabbath Mr. Palmer would again preach Unitarianism. The religious community took alarm. The right Rev. Bishop White, of the Protestant Episcopal Church, used his influence upon the owner of the building where the meeting was to be held, and he, becoming frightened by threats of prosecution, refused permission to use it for such purposes again; and from that date may be fixed the dissolution of the Universal Society, which never celebrated more than one anniversary of its formation.

CHAPTER XIX.

DISASTERS—LUKEWARMNESS OF THE COMPANY—U. S.
PATENT.

APPLICATION seems to have been made about this time, by Fitch, for various offices. He petitioned the Legislature of Pennsylvania which assembled after the adoption of the Constitution of 1790 for the post of Sergeant-at-Arms. He solicited Robert Morris to procure for him, in 1791, the post of "Supervisor of Roads, or Surveyor of Roads and Rivers." These efforts were unavailing. Fitch and Voight then both made application for situations in the Mint of the United States; hoping that whilst they held those offices they would have time to perfect the steam-boat. In their petition it was stated, "John Fitch is a goldsmith by trade, and flatters himself that he could render essential service to his country as assay-master. Henry Voight is perfectly acquainted with the process of coining, and of all machinery for the business, and can make the instruments himself, having worked at it in Germany for several years." Dr. Ewing, David Rittenhouse, Andrew Ellicott, and Dr. Patterson recommended the appointment of the pair to the posts they desired. The result was that Voight was successful, having been appointed Chief Coiner; a position he held for many years. But Fitch, unlucky as usual, did not gain the prize. The recommendations

which he received were such as proved the high esteem of those to whom his patient, honest qualities were known. Dr. Ewing said, in his letter addressed to General Washington, as President of the United States, "I have ever esteemed him as an ingenious man, and a gentleman of the strictest integrity and diligence in his business, executing any trust committed to him with the greatest fidelity, and believe his modesty is such that he would not undertake an employment which he was not persuaded he had sufficient ability to execute." Rittenhouse, Ellicott, and Patterson expressed their hearty concurrence in this eulogium.

Whilst matters were waiting for the action of the Commissioners of Patents, a proposition was made in Congress to amend the law on the subject. On the 9th of December, 1790, a Committee was appointed to prepare amendments to the bill to promote the progress of the useful arts, consisting of Mr. White and Mr. Seney. On the 2d of February, 1791, they reported "a bill to amend an act intituled 'an act to promote the progress of useful arts.'" Fitch was, as usual, promptly prepared to remonstrate. The Journal tells the story thus :

Thursday, Feb. 10, 1791.—A Petition and remonstrance of John Fitch was presented to the house and read, complaining of the injurious operation which the bill now before Congress, intituled "a bill to amend the act to promote the progress of useful arts," will have upon his interests, should the same be passed into a law.

Ordered, that the said Petition and remonstrance do lie upon the table.¹

¹ Journal of the House of Representatives of the United States, Session of 1790-91, page 60.

This proposition had attracted the attention of the Commissioners under the first act, and they refused to proceed under it, supposing that the amended law would be passed.

Fitch received notice on the 26th of January, 1791, that the hearing previously designated would be postponed until after the session of Congress was terminated. He remonstrated by letter the next day, and on the day following waited on Mr. Jefferson and the other Commissioners. He appealed to them in virtue of his distresses, and urged that he was kept in idleness and suspense until their decision should be made. "I showed them," said he, "all the clothes I had in the world, except a few old shirts, and two or three pair of old yarn stockings, all in darns, like those which I had on, that they could see I was there all in rags." Appeals like these were useless; the Commissioners were not to be affected by the presence of a poor, wretched genius, whom they knew was derided as a madman. The bill of Mr. White, of Virginia, Fitch suspected was originated by the Rumseian Society. He said it was "good for the *improver*, but not for the original inventor." The proposition was brought forward, however, at too late a period in the session to be successful. Congress adjourned on the 3d of March, and on the next day Fitch waited on Mr. Jefferson; and so on, day after day, until, to get rid of the persevering pest, the Commissioners appointed the first day of April to hear the steam-boat cases.

During the delay, an application was made to Robert

Morris and Oliver Pollock,¹ to induce them to become interested in the improvement. This paper contains many suggestions which will now excite smiles; so amazing has been the change in mechanics and navigation. The proposition bears date February 26, 1791. •

¹ "Oliver Pollock, a native of Ireland, settled in New Orleans before the American Revolution; where he amassed a large fortune in mercantile business. New Orleans then belonged to the Spaniards, who, at the commencement of the war, took no part in favour of the Colonies. This did not prevent Mr. Pollock from rendering efficient services to the cause of liberty, which he ardently embraced. He had an opportunity of showing his sentiments on the following occasion:

"Col. Gibson, of Pittsburg, father of [the late] Chief Justice Gibson, of Pennsylvania, undertook a most arduous and perilous journey to New Orleans, by order of the Governor of Virginia, to purchase powder for the American Army. The Spanish authorities could not openly sanction this transaction; but through the good offices, tact, and influence of Mr. Pollock, the Gunpowder was purchased and shipped to Philadelphia. In the Journals of Congress [Vol. 6, page 244] is a notice of a bill of Exchange drawn by Oliver Pollock, at New Orleans, on Congress, for six thousand one hundred and forty six Dollars, and duly accepted; which, doubtless, was to reimburse him for this purchase. It is worthy to mention here, as an instance of the hardships, dangers, and sacrifices which the patriots of the Revolution cheerfully encountered, that Col. Gibson returned from New Orleans to Pittsburg on foot, through regions either uninhabited by man, or inhabited only by Indians, many of them hostile. Towards the end of the war, we find Mr. Pollock attending the meeting of the Friendly Sons of St. Patrick, of which he became a member in 1783. He afterwards settled in Carlisle, Pa. He was an original member of the Hibernian Society."—*A brief Account of the Society of the Friendly Sons of St. Patrick, by Samuel Hood, page 79.*

PROPOSALS OF JOHN FITCH FOR COMPLEATING THE STEAMBOAT PERSEVERANCE — ESTIMATE, &C.

Money paid towards the Boat	£316 00
Do. due for debts on her	110 00
Do. Cocks	22 00
Tubes for Boiler and Cylinder	12 00
A strong tube, to unite the air pump and Condenser with other Tubes, making Condensing tub, &c.	8 00
Condenser and Pump valves	6 00
Plunger and Caps of the cylinder, Jackhead, &c.	11 00
Regulating Works and fixing	8 00
Cogwheels and fixing	10 00
Iron work for Paddles	7 00
Boreing air pump	6 00
Putting the works in the Boat	30 00
Coppersmith's bill for uniteing the tubes &c.	7 00
Iron work; not bespoke	20 00
For raising the Boat, Deck, Masts, and sails	100 00
For extra expence, not thought of	30 00
Superintendant	20 00
	723 00
But say	750 00
2	50 00
	£800 00

Money Paid	£316 00
3 Subscribed by Mr. Palmer	100 00
Do. by Dr. Thornton	79 00
Do. by Mr. Stockton	55 00
	550 00
2 For the engineer's chest, shipping hands, Provisions, and Necessaries for a voiage to the Rapids of the Ohio, say	£50 00
3 Money wanting to complete the voiage	250 00

PROPOSALS OF JOHN FITCH FOR COMPLEATING THE STEAMBOAT
PERSEVERANCE.

Whereas, it may be reasonably supposed that the Congress of the United States would give a premium, in addition to an exclusive Right, for reducing the Mississippi to Easy Navigation, as they will have an immediate benefit from it in the sale of their lands, or otherwise, will give an extention of the Patent right itself, as it will enhance the value of the territory they have to dispose of, And not altogether improbable but his Catholic majesty may take some notice of it, and likewise that the inhabitants of Kentucky may give it considerable support, either by subscription or otherwise, for the bringing a Boat from Phila^a to the Rapids of Ohio;

It is therefore proposed and agreed, that every member of the Steam boat Company do relinquish their claims to the Boat Perseverance, excepting only the money which they have advanced toward it, and to let either the Company or other persons advance what they please, and have a share in this Boat according to the money they advance, excepting only John Fitch, who shall be entitled to one Tenth, and Henry Voigt one twentieth, by their paying the first cost of the Boat out of the first earnings, or out of the first Perquisites obtained. And to let any man whatever advance what he pleases toward it, so as not to exceed £250, and to have an equal share in this boat, according to the money advanced, with all the advantages and immoluments which may be given by the Government or Governments for the takeing a Boat from this City to the Rapids of Ohio, with their proportionable parts of all subscriptions which may be obtained in consequence thereof.

After which, the present promoters to be entitled to build any number of Boats they shall see fit, in proportion to their shares in the Boat Perseverance, by allowing the original share holders one half of the neat profits after deducting the prime cost of the Boat or Vessel.

And should there be an extention of the Exclusive Rights above Fourteen years, the present promoters to be entitled to it according to their subscriptions in the Boat Perseverance, the

same as if a Premium was Granted, excepting only John Fitch and Harry Voigt, who shall retain their shares.

Provided, nevertheless, that if the sum of £250 should not be wanting, that the overplus shall be returned to the subscribers who are not members agreeably to the proportions they advance. The terms on which I conceive the subscribers to advance their money are as followeth :

We may suppose, could Congress know that they gave their Bounty to the meritorious, that they would, from the complexion of Congress at the first of this session, give a Bounty of Fifty thousand acres of Land, and that the Inhabitants on the Western Waters would invoke strenuous exertions by subscription to promote the same, payable on the day of the arrival of the first Boat. This I should esteem much more than what we might reasonably expect from Government ; for such a performance, which would inhance the value of the Western Territory so much, it cannot be supposed that Congress would give less than 50 thousand acres of Land, as this is not, like other inventions, confined to individuals, but an immediate value received at once by Government.

I estimate 50 thousand acres of Land, at 20 cents per acre, to be worth £3750, and the subscriptions which may be obtained at an equal sum, which may be reasonably computed at £7500 ; which would be one thousand per cent on monies advanced, beside the privilege of the Exclusive Rights afterwards, which one chance in ten of obtaining would justify the laying out the money ; but should we fail by Government, I think we should be amazingly unfortunate, indeed, if we did not obtain subscriptions at Kentucky to double the amount of the money expended ; which puts the scheme on as sure Grounds, as we can ascend the Mississippi by steam, and obtain a permit from the Spaniards, with the risque of the Sea, Indians, &c.

The risque of the permit, of the Sea, and the Indians, is better known by others than myself ; but the ascending the Mississippi by steam I will be answerable for.

All which is humbly submitted for the Consideration of Mr. Morris and Mr. Pollock, by

JOHN FITCH.

The gentlemen thus appealed to professed to be favorably inclined, but they transmitted a reply, March 21st, declining to consider the proposition until a permit was received from the Governor of New Orleans.

Whilst the Company and their Superintendent were awaiting the tardy movements of the Commissioners of Patents, Aaron Vail, U. S. Consul at L'Orient, France, who had inspected the operations of the steamboat, and was convinced of the importance and value of the invention, made proposals for an interest in the improvement, with the view of obtaining patents in France and other parts of Europe. Upon consideration, it was agreed to, and the following instrument executed :

Articles of agreement made the sixteenth day of March, in the year of our Lord one thousand seven hundred and ninety one, Between Aaron Vail, of the Kingdom of France, but at present in the City of Philadelphia, in the United States of America, Merchant, of the one part, and John Fitch, of the said City of Philadelphia, of the United States of America, Gent., of the other part. Witness that the said Aaron Vail and John Fitch, for themselves and their Heirs, Executors, administrators, and assigns, and each of them for himself, his Heirs, Executors, administrators, and assigns, doth covenant with the other of them, and his Heirs, Executors, and assigns, reciprocally, that they and each of them have, and by these presents do mutually ordain, constitute, establish, contract, agree, and conclude upon the following articles, regulations, and Terms, that is to say :

Article the First.—The said Aaron Vail shall proceed to France, as soon as is consistent with his interest and employment in America, and without any unnecessary delay. That as soon as he shall arrive in France, he shall and will take the Earliest opportunity that the nature of the case will admit of, to procure from the Government of France either the grant or special contract, as shall be most proper and advantageous, in

the name of him, the said John Fitch, the exclusive privilege of constructing, vending, and employing all species of Boats and Vessels impelled or urged through the water by the force of steam; or on such other terms as shall be most expedient, and for the longest space of time procurable.

Article the Second.—As soon as the said Aaron Vail shall have procured the said exclusive privilege, he shall and will immediately transmit, or cause to be transmitted, an official or certified copy of the said grant or contract, to the said John Fitch, in America, accompanying the said contract with his intentions, or plan of procedure, to carry the scheme into effect in France; and shall and will provide for and furnish a passage suitable for the transportation of the steam boat Mechanic from the City of New York, or Philadelphia, to such part of France as shall be by him, the said Aaron Vail, be deemed most suitable at which to commence the operation of carrying the Intention of these articles into its fullest effect.

Article the Third.—The said John Fitch shall and will, on the fulfilment by the said Aaron Vail of the second of these articles, procure and send, agreeably to the direction of the said Aaron Vail, a mechanic acquainted with the construction of a steamboat or vessel in such ample manner as to be able to superintend the building of a Boat or Vessel in France equally as perfect as any that shall have been built or completed by the steamboat company in America previously to his embarkation for France.

Article Fourth.—The said mechanic or superintendent, as mentioned in the second of these articles, on his arrival in France, shall be paid a reasonable compensation by the said Aaron Vail, for his time and labour necessarily employed in completing the first steamboat or vessel; three months after the completion of which said steamboat or vessel, he shall have Liberty to return to America; and if he should not then choose to return to America, the further employment of him shall then be at the option of the said Aaron Vail, and the obligation respecting him shall from thenceforth cease, excepting that if the said Aaron Vail shall not then choose to furnish him with further employment in building steamboats or vessels, then and in

such case, he, the said Aaron Vail, shall and will provide and furnish him with a suitable passage from the place of his employment in France to the City of New York or Philadelphia, in the United States of America.

Article the Fifth. — Immediately after the said Aaron Vail shall have procured an exclusive privilege or privileges, as aforesaid, from the Kingdom or Government of France, for any species of steam Boats or vessels, and on the arrival of the said Mechanic or superintendant in France, he, the said Aaron Vail, shall, without any delay, proceed forthwith to build one Boat or Vessel, to be impelled or urged through the water by the force of steam, and suitable to navigate the waters in France for which he shall design her, and agreeably to the plan of the said mechanic or superintendant that the said John Fitch shall send to France.

Article the Sixth. — All the monies or expenditures necessary to complete the first steam Boat or Vessel, as also all future steam Boats or Vessels that shall be by him, the said Aaron Vail, built in France, and also all the expences necessary to compleat the scheme agreed upon by these articles, shall be furnished and paid by him, the said Aaron Vail; but in building and completing the first steam Boat or Vessel, he shall not be compelled to expend a greater sum than two thousand five hundred Spanish silver milled Dollars. And all the neat profits and emoluments arising from all and every Boat or boats, vessel or vessels, impelled by the force of steam, which he, the said Aaron Vail, shall build, as well as all and every other, the profits or emoluments arising from the said scheme in France shall be divided between the said Aaron Vail and the said John Fitch, in manner following: that is to say, one equal moiety or half part thereof shall be the property of the said Aaron Vail, and the other full equal moiety or one half part thereof shall be the property of the said John Fitch; and which said one full equal moiety or one half part thereof shall be paid and delivered to the said John Fitch, or his order or orders, agent or agents, immediately after each dividend of profits shall be made. All dividends of profits or emoluments, if any there be, shall be made at L'Orient, in France, on the first Monday of January, April, July, and

October, in every year during the existence of any grant or grants, privilege or privileges, obtained by the said Aaron Vail, conformably to these articles. And all sales of any steam Boat or steam Boats, vessel or vessels, and all other business of these articles, shall be made and transacted to the greatest possible advantage of the concern generally, and a true and exact account shall be kept by the said Aaron Vail of all his transactions of building, vending, or using any steam Boat or Boats, vessel or vessels, and all other business that does or may concern the said John Fitch; all which accounts of said transactions shall be furnished by the said Aaron Vail, for the inspection of the agent or agents of the said John Fitch, or of his assigns, on his or their requiring the same, in writing, at least in one month previously to the time prefixed in such writing for such inspection; provided, that such inspection shall not be made oftener than once in every year.

Article the Seventh.—These articles shall extend, and be construed to extend to, and be in force, in all grants and privileges which may be obtained by the said Aaron Vail, his agent or agents, in the States of Holland, the Empire of Germany, or Russia, or the Kingdom of Prussia, Denmark, or Sweden, the Republic of Geneva, or the Swiss Cantons, or all of these places, in the same manner, and with the same force and operation, as they are intended to, or would operate, in France. Provided, these grants or privileges are actually applied for by the said Aaron Vail within the term of Twelve months from and after the completion of the said first steam Boat or vessel in France; and in those places, and during the time in this article prefixed, the said John Fitch shall not attempt to procure any exclusive right or privilege, except the said Aaron Vail shall neglect the necessary means and exertions of and for procuring the same. And for the true and faithful performance of, all and singular, the articles, contracts, and agreements aforesaid, the said parties do severally bind themselves, each unto the other of them, his Heirs, Executors, administrators, and assigns, in the penal sum of Ten thousand Dollars, silver money, firmly by these presents.

In witness whereof, the said parties to these presents have interchangeably set their hands and seals hereunto, dated the day and year first above written.

Sealed and delivered in the
presence of

John Lohra,
William Smith,
George Merier.

Aaron Vail, [seal.]
John Fitch. [seal.]

We, the subscribers, being a majority of the Steam Boat company in America, do consent that the above named John Fitch do for himself enter into the above articles of agreement with Aaron Vail, of the Kingdom of France; and that we will not do or commit any act or acts to counteract or invalidate the intention or meaning of the above articles of agreement.

I do hereby assign all my right and title to these articles to the above signed Benjamin Say, Edwd. Brooks, Jr., and Richard Stockton,¹ Directors for the benefit of the steamboat Company, in proportion to the moneys they shall have advanced for the perfecting of the scheme in America at the time of the completion of the first steamboat in France, excepting the shares of Henry Voight and myself.

JOHN FITCH.

On the 4th of April, 1791, the day appointed for hearing the petitioners for steam-boat patents, Fitch attended at the office of the Secretary of State. The Commissioners were, for some unexplained reason, as unwilling to discharge their duties as they had been previously. The next day Fitch filed reasons against the claims of Stevens; principally founded upon the

¹ These gentlemen did not sign the license given above. Probably it was not considered material. They undoubtedly assented to the arrangement.

fact that the latter had recommended Fitch's invention to the Legislature of New Jersey as worthy of the protection of law, and that a statute was afterwards passed, March 18th, 1786. It was therefore argued that Mr. Stevens could not have invented a steam-boat until after that time. Barnes, who was present on behalf of Rumsey, suggested that the merits of the rival claims of the latter, and of Fitch, should be left to the decision of referees. This was assented to. Fitch named, as gentlemen from whom the proper number were to be selected, Dr. John Ewing, Robert Patterson, Andrew Ellicott, Peter Thompson, David Rittenhouse, and John Wood.

Barnes proposed Thomas McKean, William Lewis, George Clymer, William Barton, Dr. Benjamin Rush, and John Nancarrow.

A difficulty arose about the interest which these gentlemen had in the inventions of the respective claimants. Although Ewing, Patterson, Ellicott, and Rittenhouse had no property in the steam-boat, they were good friends of Fitch. He thought, however, that they were very proper persons, but he objected very much to almost all named by Barnes. Thomas McKean had, as Judge of the Supreme Court, given an opinion that the Assembly of Pennsylvania could repeal Fitch's law. His two sons were also interested in Rumsey's scheme. William Lewis, while in the Assembly, had taken part against Fitch, "as if he was an attorney for Rumsey." Barton was alleged to be a known partner of Rumsey—he belonged to the Rumseian Society. Clymer was believed also to have a share in that scheme; he was at all events active,

when in the Legislature, in opposition to Fitch. Rush was "one of Rumsey's principal patrons in Great Britain." John Nancarrow was thought to be the only person disinterested. Dr. Smith was proposed in place of Barton; Dr. Barton, a brother of the latter, was suggested in place of one of the others; and Joseph McKean, a shareholder in Rumsey's boat, and William Warn, were named. Fitch suggested William Rawle, Samuel Garrigues, and Edward Pennington. The matter was then postponed; and finally, Barnes decided not to submit to the arbitration.

Another petition to the Commissioners was prepared by our persevering laborer. He showed it, on the 12th of April, to General Henry Knox, Secretary of War, who received him civilly. Governor Randolph read it, but made no satisfactory reply. Jefferson treated Fitch coolly, and refused to receive the petition because his clerk was absent. He at first declined to look at the papers, and said "it was too much like tampering with judges out of doors."

Fitch replied, "I have an undoubted right to petition."

Jefferson, after some hesitation, read it, and said, "I can say nothing until after the Board meets," and refused to receive the paper, which was not filed until Mr. Remsen, his clerk, returned, a day or two afterward.

On the 22d of April, the parties met according to adjournment; but it being Good Friday, Governor Randolph went to church. A new clause was added to Fitch's petition, in which he claimed an exclusive right for forcing out water abaft of a steam-boat; also

forcing out air, and air and water combined ; likewise for navigating with cranks and paddles.

The next day was that of the final meeting, and the parties were all present before the Commissioners. Governor Randolph said that they would be compelled to give the oldest patent to the first applicant. As Rumsey had applied to *them* before Fitch, the latter believed this declaration to be made with an intention to do him injustice. With great readiness, he immediately urged that *his* application had been the *first*, having been made to Congress in August, 1785. Jefferson then said they could make no distinction in the date of the patents, but would issue all with equal date ; leaving to the parties the pleasant prospect of long and expensive litigation. Fitch remonstrated against this injustice, but without avail ; and the letters patent were ordered to be made out. Until they were signed, a certificate in the following form was given :

Extract from the proceedings of the Commissioners for the
Promotion of useful Arts.

Philadelphia, April 23, 1791.

The Board proceeded to the consideration of the claim of John Fitch, of Philadelphia, for a patent for the following applications of steam, alledged by him to have been invented, viz. :

For applying the force of steam to trunk or trunks, for drawing water in at the Bow of a Boat or vessel, and forcing the same out at the stern, in order to propel a boat or vessel through the water. For forcing a column of air through a trunk or trunks, filled with water by the force of steam. For forcing a column of air thro a trunk or trunks, out at the stern, with the bow valves closed, by the force of steam ; and for applying the force of steam to Cranks and Paddles for propelling a boat or vessel through the water.

Whereupon, ordered, that letters Patent be granted to the said John Fitch, for his aforesaid inventions, for the term of Fourteen years, agreeably to the act entitled "an act to promote the progress of useful arts."

HENRY REMSEN, JR.,
Clerk.

The regular patents were not issued to Fitch and the others until August 26th, 1791. That granted to Fitch is in the specification, word for word, like the above. The formal parts differ but little from the foregoing; the patent is signed by Washington, and by the Commissioners, Jefferson, Knox, and Randolph.¹

¹ Duer's second letter to Colden, Appendix.

CHAPTER XX.

WORK ON THE STEAM-BOAT PERSEVERANCE — ABANDONMENT OF THE SCHEME.

DISAPPOINTED with the result of the application to the Commissioners of Patents, it was resolved to call a meeting of the Steam-boat Company, for the purpose of consultation. The members did not assemble at the time designated. Disgusted and despairing, Fitch wrote the next day to Dr. Thornton, who was in the West Indies. In that communication he set forth the embarrassments of the Company, and his own distress, and declared that he intended to leave the city. Going to the mother-in-law of the Doctor, Mrs. Bradshaw, he was informed that his absent friend had sent an order that another £100 should be paid to the Steam-boat Company on his account. A few hours afterward, he met Mr. Stockton, who informed him that a permit had just been received from the Governor of Louisiana, that the steam-boat might come there, with the persons necessary to navigate her, and with their household furniture. Another meeting was called for the 30th of April. At that time it was determined to take the engine out of the old boat, and that the hull and materials should be sold. It was also decided that the Perseverance should be finished. This display of fitful energy was succeeded by the usual indifference; during all which time the unfortu-

nate man was compelled to languish and wait. He busied himself about the proper method of fixing the arms of the oars, and drew a plan by which, in addition to the paddles, there might be combined the method of pumping in water at the bow and ejecting it at the stern; and also of passing out air through a trunk against the water. A boat propelled by such a union of forces would, it was thought, be unusually swift. The work now being of a different character from what had been yet attempted, he suggested Peter Lukins, of Horsham, Bucks County, as blacksmith; declaring that, if he could be procured at a dollar a day, he would be the cheapest mechanic who could be obtained. The Directors put an end to this proposition in a summary manner, by a declaration that Fitch was perfectly competent to do the work without other aid. Disappointed by frequent failures, he had now become querulous; and he annoyed the members of the Company by frequent complaints. He had been promised twenty shillings a week while attending to the business of procuring the United States patent, the greater part of which wages was yet due him. He was living under great privation, and in a letter dated the 14th of May, gives the following inventory of his wardrobe:

“Two pair of shoes, one about 15 months old, the other about 12, wore alternately; one Do. new, not yet worn. Four pr Cours yarn stockings; two pr three yrs old, but footed fall before last; two of which, new last fall. A jacket and breeches, bought last fall, but considerably Riped, and the Breeches begins to break in the Crotch. Five or six old shirts; the two newest bought last fall. Four stocks, in constant wear about three

years, but have been mended, and will probably last me this summer. One Coat. I cannot tell the exact age and constant wear of it, but it is broke in every part; especially the lining, elbows, about the wrists, and under the armes. An old second handed hat, now worn by me about two years. A pr of shoe, knee, and stock buckles, all of silver, but pretty good, altho very antient, and out of fasion. One great Coat, three years old. One pr of Cours Indian legings, not yet worn, with garters and all compleat. One nightcap, 2½ years old, but very good."

He was very much annoyed by not knowing precisely what the articles with Vail required. He complained that he was bound in ten thousand dollars penalty, and that he did not know what he was compelled to do by the agreement. He protested against going on with the work upon the Perseverance until money enough to finish it was procured. He was lukewarm even after it had been agreed to take the £100 subscribed by Mr. Palmer. He also declared that he must have at least thirty shillings a week wages, punctually. The Directors at length yielded to his solicitations. They gave him £4 11s. for clothing, and an order for £15; which closed the account up to the 14th of May.

He now set to work with diligence, but was subject to delays. The removal of Congress from New York to Philadelphia had caused brisk times. Mechanics had plenty of employment at increased wages, and it was difficult to obtain them when required upon the boat. They continued their labors during the summer, and on the 7th of September were ready to make steam and set the works in motion. One of the Directors, unknown to Fitch, had ordered a wooden case to the boiler, which was too short. They tried to

piece it with wood, but could not make it tight; and when they loaded the valve in order to make a vacuum, the water gushed out in streams. They could not raise steam enough to move the works in the first place, and the engine being large, they could not move the great piston by hand, to make a vacuum, and thus assist the subsequent motion. The Directors, who saw the failure, said the air-pump was too small, and they ordered it to be taken out without further trial. Fitch thought the proper method would have been to make the boiler-case tight; and then, by loading the valve, make a vacuum, and thus ascertain if the pump would not answer.

This counsel was disregarded; and not only the air-pump, but the condenser was taken out, and others were ordered to be put in, although it was doubtful whether such change could be made so as to render the new portions applicable to the other parts of the engine. This delay and fresh expense so exhausted the funds that there was not money enough to pay for so slight a work as an alteration to one of the cocks. The wages of Fitch were again in arrear. He "had not a penny to buy soft-soap."

To add to his troubles, he had a quarrel with Voight, with whom he had entered into a partnership in April, with the intention of manufacturing steam-engines. Voight claimed to be the owner of the cattle-boat; or rather to the application of the rowing machinery of the steam-boat to boats moved by the power of cattle. This was certainly ungenerous, inasmuch as in the articles of 1787, which Voight had signed, it was expressly mentioned that the cattle-boat had been in-

vented by Fitch, and all rights to that improvement were ceded to the Company.¹ The winter had now come on, and there was nothing more to be done with the steam-boat. Fitch therefore employed himself in correspondence with Voight, and in procuring certificates that he was the real discoverer of the mode of propelling the cattle-boat. In January, 1792, this dispute was terminated by the better nature of Voight, and he gave a certificate, which was witnessed by J. Buck and C. Pryor, that Fitch was the original inventor of the method of rowing by cranks and paddles.

During the year Fitch made some effort to retrieve his interests in other quarters. After he had become infatuated with the steam-boat, the care of the interests of the Land Company in Ohio was given to Jonathan Longstreth, who went to the Western country in 1787. He became the agent of Fitch, also taking out some of his maps, which were delivered to Colonel Penticost, of Chortee, Dr. Johnson, who lived near Mingo, Colonel Cook, and others. He also collected some debts which were due his principal; among others, from Burnet, his fellow-prisoner, who took leave of him in Bucks County after his release from captivity. Several of the surveying instruments of Fitch had been left in Kentucky, and these were procured and used by Longstreth. There were unsettled accounts between them, and finally, on the 23d of May, 1792, they agreed to submit their differences to arbitration, and a bond, which is still extant, was executed by

¹ Nevertheless, Henry Voight took out a patent "for a method of propelling boats by animal power," August 10, 1791.

Fitch, that he should stand by the award of referees. The balance in his favor was ascertained to be small. It was paid by Longstreth, and it went a short way towards relieving the distresses of the recipient.

In the spring, as soon as the weather was mild enough, attempts were again made to finish the *Perseverance*; but they met with little encouragement from the stockholders. What work was performed "was done by halves," and the still earnest projector himself borrowed the money to do it. A payment of forty dollars, made to him by Mr. Stockton, was some relief, but he declared that he wanted double the sum.

In despair, he applied to Mr. Rittenhouse, in a letter, a copy of which is yet preserved. This epistle is sadly prophetic in relation to the triumphs of steam navigation. It is curious, on account of the strange method suggested to fight the Barbary corsairs with a steam fire-engine; it is melancholy, as a proof how much the heart of the man was wrapped up in his invention, and what sacrifices he was willing to make to perfect it. It was in the following words:

PHILAD., 29 June, 1792.

Worthy and much esteemed sir:

I conceive that navigation by steam will be the second mode of Navigation, but can never take the preference of a fair wind, as air is much cheaper than steam. It may, also, be boldly asserted that it would be much easier to carry a first rate man of war by steam, at an equal Rate, than a small boat; for in such a case we should not be so cramped for room, nor should we so sensibly feel a few pounds weight of Machinery.

This, sir, whether I bring it to perfection or not, will be the mode of crossing the Atlantick in time, for Packets and armed

vessels, as it could be placed in a ship without interfering with a rope or sail, except the mizzen, which must be made somewhat smaller.¹

¹The first steamship that ever crossed the Atlantic Ocean was the *Savannah*, an American vessel. The *Savannah* was built at New York, and measured 380 tons. She was ship-rigged, and had a horizontal engine. It was the hope of her owners that they could sell this ship to the Emperor of Russia. Under the command of Captain Moses Rogers, the *Savannah* left the port of that name on the 26th of May, 1819, for Liverpool. The time occupied in the voyage has been variously stated as eighteen, twenty-two, and twenty-five days. "Marwade's Commercial Report," a paper then published in Liverpool, and the best authority, says that the time occupied was twenty-five days; during eighteen of which the *Savannah* was under steam. On the other hand, it has been said that the vessel only employed steam, during a trip of eighteen days, for seven days; and that she had not the capacity to carry fuel [pine wood] sufficient for use during eighteen days' steaming. It is generally conceded that steam ~~was~~ used during a part of the voyage. One who professes to have been a passenger, says that the voyage was commenced by steam, but fuel running short, the wheels were taken off, so as not to impede sailing, and replaced when near the British coast, when steam was again made, and the *Savannah* went into Liverpool by the aid of that power alone. Marwade's Commercial Report says, "this is the first ship of this construction that has undertaken to cross the Atlantic.

* * * Her approach to port without a single sail displayed the power and advantage of the application of steam to vessels of the largest size." During her voyage up St. George's Channel, the commander of a British fleet stationed there was utterly at a loss to account for her remarkable appearance, enveloped as she was in heavy clouds of smoke, and moving without the aid of canvas. He naturally conjectured that she must be on fire, and in distress, and sent two cutters to her relief; but finding that assistance was not wanted, he brought her to with a shot, and satisfied himself by examination that all was right. The *Savannah* left Liverpool for St. Petersburg July 23d, 1819,

I mean to make use of wind when we have it, and in Calms to persue the voing at the rate of seven or Eight miles per hour; nay, I am lead to believe it will be a means of civilizing the whole coast of Barbary; for we can make our Oars to work when the weather is so rough that others cannot, and always come up with them, and take them, or run from them, and escape; which I presume the latter would never be the case; for by uniting that force with a fire engine, which I presume it could be done in 20 seconds, and that a six foot cylinder would throw a column of Water from the Round top 40 or 50 yards sufficient to take a man from his feet. Not only that, but it would wet their armes and ammunitions, so as to silence all the musketry in a very few minutes, and all the big guns that it could reach, especially those on deck, that I presume that a 20 gun ship never need run from one of a hundred.

But, sir, I can blame no man for not having the same exalted Ideas of it as myself; but only permit it to be sufficient to Navigate the Mississippi; the acquisition is great, and I think too great to be given over dureing my Patent Right.

My Friends have become disjointed, and proficient [inefficient], when the scheme is on the crisis of compleation, and can raise no more money. I am both in debt and in Rags; but could I compleat it by selling all my property in Kentucky at a g' loss, I would gladly do it. I think with £50 I could cloathe myself,

moored off Cronstadt, 25th of September, left there the 10th of October, (the Emperor of Russia declining to purchase,) stopped at Copenhagen, and at Arundel, in Norway, and finally returned to the United States, arriving at Savannah November 30th. The steam-machinery was afterward taken out of the Savannah, and she plied regularly as a sailing-packet between Savannah and New York for several years, and was finally wrécked on Long Island.

The first English steamer which crossed the Atlantic was the Sirius; which left Cork, in Ireland, and arrived at New York April 23, 1838, after a voyage of eighteen days. Four hours afterward, the British steam-ship Great Western, from Bristol, England, also entered the harbor of New York, after a voyage of fifteen days.

pay my debts, and compleat the greatest undertakeing, worthy the notice of Mr. Rittenhouse, and wish his name recorded, that he was the man, and the honor conferred on him.

Do not think, sir, that I wish you to advance money for my sustenance, or on my projects; but on the enclosed propositions; and which cannot fail to give you one hundred pr Ct; and yet I shall feel the obligation so great, that your name shall stand foremost in compleating this great undertakeing, if successful.

I beg, sir, to refer you to the enclosed propositions; and whether you accept it or not, that I may be esteemed by you, what I really am, *viz.*:

Your most Devoted Friend

and Humble Servant,

David Rittenhouse, Esq.

JOHN FITCH.

The accompanying proposals stated that the writer was still possessed of lands in Kentucky, which were growing valuable. If £50 were advanced to him, he would go there and sell them, and return £100 for the loan. The money thus raised was to be used in completing the steam-boat.

In the succeeding week he wrote a letter of similar tenor to Mr. Wells. Mr. Rittenhouse did not accede to the proposition. Mr. Wells also declined, but gave Fitch ten dollars to relieve his necessities. The same proposals were also made to the Steam-boat Company, with the additional offer, that after receiving £100 for £50, they would be allowed one-half of the remainder.

With these efforts all further endeavor seems to have ceased. The boat was abandoned, and Fitch loitered about Philadelphia for some months, an abject, despised, insulted, heart-broken man.

In the seventh volume of Hazard's Register, of Pennsylvania, page 91, Thomas P. Cope (signature "Epoc") has given his recollections of this unfortu-

nate genius, as he appeared to him about this period. Mr. Cope, after speaking of Fulton, says,

"Whilst Robert Fulton was thus engaged in London, John Fitch, clock maker, was contriving schemes in Philadelphia for the propulsion of his boats by steam. He conducted his mysterious operations at a projection on the shores of the Delaware, at Kensington, which among the wise and prudent of the neighborhood, the scorers of magicians and their dark works, soon acquired the ominous and fearful title of *Conjurer's Point*.¹ I often witnessed the performance of the boat in 1788, '89, and '90. It was propelled by paddles in the stern, and constantly getting out of order. I saw it when it was returning from a trip to Burlington, from whence it was said to have arrived in little more than two hours. When coming to off Kensington, some part of the machinery broke, and I never saw it in motion afterwards. I believe it was his last effort. He had, up to that period, been patronized by a few stout hearted individuals, who had subscribed a small capital, in shares, I think, of £6 Pennsylvania currency; but this last disaster so staggered their faith and unstrung their nerves, that they never again had the hardihood to make other contributions. Indeed, they already rendered themselves the subjects of ridicule and derision, for their temerity and presumption in giving countenance to this wild projector and visionary madman. The company thereupon gave up the ghost, the boat went to pieces, and Fitch became bankrupt and broken-hearted. *Often have I seen him stalking about like a troubled spectre*, with down cast eye and lowering countenance, his coarse, soiled linen, peeping through the elbows of a tattered garment. During the days of his aspiring hopes, two mechanics were of sufficient daring to work for him. Aye, and they suffered in purse for their confidence and folly.² These

¹ It is supposed that the place was at Point Pleasant; somewhere near the present Cherry, or Vienna street, and below Gunner's Run.

² This supposition of Mr. Cope is a natural one, but it is not likely that much, if anything, was lost on account of the steam-

were Peter Brown, shipsmith, and John Wilson, Boat builder. They were worthy, benevolent men, well known to the writer, and much esteemed in the City. Toward Fitch, in particular, they ever extended the kindest sympathy. While he lived, therefore, he was in the habit of calling almost daily at their workshops, to while away the time, to talk over his misfortunes, and to rail at the ingratitude and cold neglect of an unfeeling, spiritless world. From Wilson I derived the following anecdote: Fitch called to see him as usual—Brown happened to be present. Fitch mounted his hobby, and became unusually eloquent in the praise of steam, and of the benefits which mankind were destined to derive from its use in propelling boats. They listened, of course, without faith, but not without interest, to this animated appeal; but it failed to rouse them to give any future support to schemes by which they had already suffered. After indulging himself for some time in this never failing topic of deep excitement, he concluded with these memorable words: 'Well, gentlemen, although I shall not live to see the time, you will, when steamboats will be preferred to all other means of conveyance, and especially for passengers; and they will be particularly useful in the navigation of the River Mississippi.' He then retired; on which Brown, turning to Wilson, exclaimed, in a tone of deep sympathy, 'Poor fellow! what a pity he is crazy!' * * * * * Brown and Wilson were more prosperous. They both lived to retire from business in easy circumstances. The former, indeed, became rich, and set up his carriage. He was of too noble a spirit to indulge either in luxurious pride or ostentation. The coat of arms on the panels of his carriage doors was of his own contriving, and consisted of a muscular hand, grasping a sledge hammer suspended over an anvil. *Motto*, "By this I got you."

His principal occupation now was writing his journal and autobiography, wearying his patrons with applications and remonstrances, and railing at the ignorance, boat by workmen. The stockholders were men of means, and able to pay. Beside this, enough has already been adduced to show that their policy was "pay as you go."

prejudice, and folly of the world. In one of these complaints, he laments that mankind should neglect so important a work as the steam-boat, whilst they run mad about "beloons and fireworks." (*See Note at the end of this Chapter.*)

More touching is the prophetic language, "The day will come when some more powerful man will get fame and riches from MY invention; but nobody will believe that poor John Fitch can do anything worthy of attention."

His misfortunes had a tendency to render him querulous. He believed that he had been injured. Not forgetting the injustice done him by the Commissioners of Patents, he prepared the following letter, addressed to Thomas Jefferson :

I, Sir, am sorry to live in a state that no sooner becomes a nation than it becomes depraved. The injuries which I have received from my nation, or rather from the first officers of Government, has induced me, for a lesson of caution to future generations, to record the treatment which I have received, which will in a very few days be sealed up and placed in the Library of Philadelphia, to remain under seal till after my death, in which, sir, your candour is very seriously called in question.

I, Sir, altho an Indigent citizen, feal myself upon an equal floore with the first officers of Government; therefore trust that your Exalted station will not permit you to treat this proposal with Contempt, as I do not wish to take any undue advantage; and should I outlive you, and you not having it in your Power to make your defence, I should think it unmanly to conceal it from you; therefore offer you the perusal of all my manuscripts for six days, on your giveing in writing your Plighted faith of honor, to return them all safe in that Time, and on these conditions: that if you should make any observations upon them,

that you will furnish me with a Copy of the same. This, Sir, is from a poor but an independant Citizen of the United States of America, and from one who wishes to subscribe himself

Your most sincear friend,

JOHN FITCH.

24 July, 1792.

Thomas Jefferson, Esq.

This epistle was never delivered to Mr. Jefferson. The friends of Fitch persuaded him not to send it. He enclosed it among his papers delivered to the Philadelphia Library Company.¹

Wearied, disappointed, and sorrowful, he seems to have at this period seriously contemplated an awful *finale* to an existence which had been apparently spent with little advantage to himself or to mankind. Four days after he penned the letter to Jefferson, he addressed another to the Librarian of the Philadelphia Library, in which he plainly intimated his design of dying by his own hand, believing that the letter would

¹ Some correspondence was afterwards held with his family, as appears by a letter dated the 25th of September, 1792, addressed to Colonel James Kilbourne, his son-in-law, who had married his daughter Lucy:

"My dear child, know that I am a man of tender feelings, however my children may have been educated to form their opinions of me. No man loves his children better than myself, although I never saw but one. Forgive me for not entering into a justification of my conduct, but esteem your mother in law and myself as we have both merited; but I require of you that you treat her kindly, because she was once the wife of John Fitch. But, much as I love my children, any mediation through them would be ineffectual."—*Whittlesey. Sparks' American Biography, page 101.*

not be read until many years after he had left the troubled stage of life. The epistle, which was designed to accompany his manuscripts, (being sealed up with them,) was in these words :

The 3^d No.¹ I wrote before I revised my work for the Commissioners the 3^d time, which made many alterations in it ; not only that, but was much in a Hurry, and was obliged to put down matters in improper places, which I wish to be revised, and placed regular, as they ought to stand. Likewise, as I am no Gramarin, I wish the whole of my works revised, but not altered in substance, and that the original may forever remain in the Library.

Some few days before my death, I wrote the enclosed copy of a letter to Mr. Jefferson ; but being persuaded from it by some of my Friends, who did not know in *what manner I designed to die* ; yet at present wish that I had done it, altho I believe he would have so little to have said in his own defence, that he would have probably treated it with contempt, without noticing it.

I have two reasons for keeping it under seal for 30 years, altho I must be a sufferer during that time. The first is, there is two valuable families that the children might possibly be injured by it, but in that time may probably be Married, and the improper conduct of their parents may not hurt their temporal interest, however Injured I may have been by them.

Another is, that the warmth of the present age is so much in favour of the first officers of the Government, whom I have so strenuously called in question their Candour, that I much fear that they would be destroyed without ever giving the world an opportunity of knowing in what manner I have been treated by them.

But should these, by curiosity, or any axcedent, be broken open before the time Limited, I call on every *Mason*, and every honest man, to see them protected ; and if any one has any objections to them, let them convince the world by fair reasoning that I am wrong, but let the works be saved.

¹ Meaning the third book of the manuscripts.

After which, it is my serious request that no one be permitted to take them out of the Library without giving one Thousand Pounds security for their safe return.

JOHN FITCH.

To the Librarian.

Philadelphia, 30 July, 1792.

The MSS. seem to have been sealed up by him at that time. The envelope bears the date, August 1, 1792, but the package was not immediately delivered.

The following entry upon the minute-book of the Library Company of Philadelphia, records the reception of these manuscripts:

Oct. 4, 1792. — A sealed cover, inscribed Manuscripts, was presented by John Fitch, who requests the same may be kept unopened until the year 1823. The Librarian is directed to deposit the same in the Museum.

He afterwards inquired whether the Library Company would accept the trust; and having been informed of their action, he addressed the following supplementary letter of directions to the Librarian of the institution:

Philad., 24 October, 1792.

To the Librarian of the Philadelphia Library.

SIR, the reason of my keeping the manuscripts under seal so long, was for fear that the Violence of the Times, or the parties whome they effected, might be a means of having them destroyed. This is to request you that whenever a person should come forward and pledge his honor that he will revise them over, and do them justice, and spare no man, however high in office, but convey my Ideas of them, and give security for publishing one Thousand Coppies, and of the return of those manuscripts to the Librarian, that you Petition the Governour and the managers of the Library for leave to Breake the Seals; and by his giving security for their safe return to the Library in one year, to my Executors, he be permitted to open and publish the same.

This is further to request you, that *should Mr. Jefferson ever be aiming toward the president's Chair*, by all means to obtain leave to breake the seals, and extract what effects the Commissioners of Congress, and then seal them again. Nay, sir, I wish it done to all the scounderals that is steping forward for more favours from their country. I mean Lewis, Clymer, Fitzsimons, McKain, Rush, &c., &c.; and if Mr. Robertson had been worth notice, I would have mentioned his name. I wish them to be published in their life time, that they may say all they can against it, but in such a manner that it will not be in their pow [power] to destroy those works; and I think when the Governour and managers knows that it is my desire, that there will be no scruples of breaking the seals.

I trust, sir, that you will seal this letter to the manuscript, that it may not be lost, and permit me to say, I am

Your Most Obeadent,
Humble Servant,

To the Librarian of the
Philad. Library.

JOHN FITCH.

These manuscripts are contained in six books, with pasteboard covers, of the old-fashioned "cyphering-book" style. They are divided into two parts; one embracing particularly the history of the steam-boat, the other being an autobiography. The steam-boat history embraces 310 pages, the autobiography 145 pages; the sixth part, separately paged, is a copy of the remonstrances and arguments addressed to the Commissioners of Patents, and occupies 56 pages. The style is plain, and unpretending; the important facts are scattered throughout the MSS. without order, and in some cases in obscure confusion. It requires comparison, earnest attention, and in fact close study, to gather the threads of the narrative; so many are the points at which divergence has been made to intro-

duce statements not in their regular places. The autobiography is frank in its revelations. There does not seem to be a desire to conceal anything, and some confessions of weakness are made which almost any one who was writing the narrative of his own life would desire to hide. We have not thought it worth while to advert to one or two of these matters, because, while they reflect no discredit upon Fitch, and show him to have been a man of generous impulse, they would injuriously affect the reputation of others. The autobiography is addressed to the Worthy and Reverend Nathaniel Irwin.¹ The steam-boat history is

¹ The Rev. Nathaniel Irwin lived in the township of Warrington, Bucks County, Pennsylvania. The house stood on what is now known as the Doylestown and Willow Grove turnpike road, about a mile south of Newville. This house is still standing, and is now owned by E. H. Eldridge, of Philadelphia. It is about three miles west of the Neshaminy Church. At the graveyard of this latter place is the following inscription, upon a large, flat tombstone:

“Sacred to the memory of the Rev. Nathaniel Irwin; who was ordained to the Gospel Ministry, and installed Pastor of the Presbyterian Church at Neshaminy, November 3d, 1774, and departed this life March 3d, 1812. Aged 65 years, 4 months, and 15 days.”

On the same is mentioned that Priscilla, his wife, died August 3d, 1822, aged 62 years.

“When the General Assembly of the Presbyterian Church in the United States determined, in the year 1811, to establish a Theological Seminary, for the more thorough training of her candidates for the sacred office, there was much diversity of opinion respecting the most eligible site for the institution. Between Princeton, N. J., and Chambersburg, Pa., the chief competition existed; but there were a few persons who were strongly in favour of placing it on the very site of the Log Col-

more particularly directed, in the beginning, "to my children."

The following extract from the minutes of the Library Company record the fact of the *formal* opening of Fitch's manuscripts, at a meeting of the Directors, Feb. 6, 1823.

"The Books and papers, enclosed under sealed envelope, from John Fitch, dated the first day of August, One thousand seven hundred and ninety two, to be opened in thirty years from the first day of February, One thousand seven hundred and ninety

lege. The Rev. Nathaniel Irwin, then pastor of the church at Neshaminy, and a man of profound understanding, was earnestly desirous that it should be planted on the ground where a building had once stood to which the Presbyterian Church owes so much. And to manifest his sincerity and zeal, Mr. Irwin left in his will a considerable bequest (\$1000) to the Seminary, on condition that it should be ultimately located there."—*History of the Log College, by Rev. A. Alexander, D. D., pages 16, 17.*

In the gable end of the church is a stone, with the following inscription: "The Presbyterian Church of Neshaminy, founded in 1710, edifice erected in 1743, enlarged 1775, repaired 1842."

It is supposed to be one of the earliest places of worship of this denomination in the country. It is beautifully situated by the Neshaminy, secluded, and surrounded by old forest trees.

Mr. Irwin was licensed to preach as a minister of the gospel by the Presbytery of New Castle, Delaware, in 1772-3. By authority of the Synod of New York and Philadelphia, he was sent in the latter year to the southern and western frontiers as a missionary, and went to the back parts of Virginia and Pennsylvania. Returning in 1774, he was received a member of the Presbytery of Philadelphia, and stationed at Neshaminy Church. He was several times Clerk of the Synod and General Assembly of the Presbyterian Church, and in 1800 was elected a Trustee of the latter body. He was a worthy, fervent, and faithful preacher.

three, were opened, and found to consist of a letter to the Librarian, Marked A, another to the Librarian, marked B, a draft of another to the Secretary of State, marked C, and six folio manuscript paper books, marked in the centre of the covers, D, E, F, G, H, and I, by Benj. R. Morgan, Secretary. Dr. Parke, Mr. Norris, and Mr. Gibson were appointed a committee to examine the above books and papers, deposited by John Fitch, and report an abstract of them to the board, and also to suggest such order as it will be proper to take thereon." "At a meeting of the Directors, March 6th, 1823, the Committee appointed at the last meeting for that purpose reported an abstract of the books and papers deposited by Mr. Fitch, and suggested that those books and papers, together with the abstract, be placed under the care of the Librarian until the further orders of the Board; which was agreed to by the board."

Although not in the proper place, it is of sufficient importance, to add here a fact which was not known to the writer of this biography until the work of the printer had reached the present point. This is, that there is yet living in Philadelphia (July, 1857) a gentleman, Mr. Samuel Palmer, who was a passenger upon Fitch's steam-boat. His father, Mr. Thomas Palmer, was a member of the Steam-boat Company, and seems to have made much larger advances to aid the scheme than the majority of his associate shareholders. (*See page 188 and page 317.*) Mr. Samuel Palmer, when a small boy, made a trip, in company with his father, upon Fitch's boat, from Philadelphia to Burlington. He has a vivid recollection of the journey. They went on board at Market street wharf, at which a large number of persons were collected to see them start. The steam-boat was propelled by paddles in the stern. It went along noisily, the machinery producing a con-

stant creaking and shaking, and the force of the engine causing the boat to tremble in consequence of the resistance of the water. At Burlington they came to at Kisselman's wharf, in the lower part of the town. Mr. Palmer is unable to fix the date of this voyage; but as the boat in the regular trips in 1790 went from Arch street wharf, and the starting-place on this occasion was Market street wharf, it is probable that Mr. Palmer's journey was either in 1788, after the successful experiments, or in May, 1790, before the steam-boat ran regularly for the conveyance of passengers and freight.

Here the history of the Philadelphia steam-boats properly ceases. The *Perseverance*, with the engine nearly finished, was abandoned. The shareholders became careless upon the subject. For four years the boat and machinery remained without change. The following advertisement, from Bache's *Aurora and General Advertiser* of August 18, 1795, announced the last act in the melancholy drama:

A STEAM ENGINE.

On Wednesday, the 24th inst., will be sold by Public Vendue, on Smith's wharf, between Race and Vine streets, a sixteen inch cylinder steam engine, with machinery appertaining thereto. The terms of the sale will be cash, and the sale to commence at ten o'clock in the morning. Composing the same there are, viz.:

A COPPER BOILER, with 2 large pipes, cocks, &c.

A 16 INCH CAST IRON CILINDER, STEAM CHEST, PISTON, ROD, CHAIN, &c.

A LEADEN SINK PIPE & BRASS VALVE.

A LEADEN PIPE AND COCK, for supplying the piston.

One do. for the waste water.

ONE LEAD CILINDER CUP.

A LEAD PUMP for injection water.

2 CISTERNS.

1 large fly wheel (cast iron) and AXLE thereof.

2 TWO FEET CAST IRON WHEELS, handy for steam and injection.

A FURNACE DOOR and GRATING.

A 9 or 10 feet LEVER or BEAM.

PUMP RODS and boxes for do.

A SMOKE pipe, and sundry other apparatus, &c.

EDWARD POLE,

Auctioneer.

Note to page 340.

Balloons, fireworks, and steam-boats were equally objects of attention about this time, and they fairly divided the public wonder between them as matters of curiosity, but of no real utility. Of the three, steam-boats were least cared about. Balloons and fireworks enjoyed a certain share of popularity, but steam-boats were subjects of derision. The allusion of Fitch was caused by circumstances which could not escape the attention of any one who watched the signs of the times. The first successful ascent with an ærostat in the United States (it is believed) was made in 1784, by Mr. Carnes, of Maryland. He brought his balloon to Philadelphia, and an ascent was announced to take place on the 17th of July, in that year, from "the new work-house yard." The balloon was of flimsy silk, having holes in some places, and being patched in others with bed-tick. It was without a proper net-work, and the power which was to raise it was not gas, but heated or rarified air. To render this fire-balloon successful, it was necessary to have a stove with fuel to burn in the mouth or neck of the machine, so as to keep the air rarified. The furnace thus employed weighed one hundred and fifty pounds. The ærostat was thirty-five feet in diameter, and it was supposed it would carry four hundred and nine pounds. On the appointed day the fire was kindled, the silken sphere expanded, and the cords being cut, the machine slowly ascended. The air blew it against the prison-wall. Mr. Carnes was brushed against it, and fell to the ground.

This was a lucky disaster; for the balloon soon afterwards caught fire, and was consumed. The stove fell in South street, near the old theatre. Undaunted by this failure, some of the town philosophers proposed to raise subscriptions to construct a larger balloon, sixty feet in diameter, and capable of raising 3373 pounds. This scheme never came to fruition.

The next wonder was the steam-boat; which, by those who remembered Carnes' failure, was placed in the same category.

In 1792, the celebrated Blanchard came to Philadelphia, and with pompous flourish announced his intention of making his forty-fifth ascension. He took up considerable space in the newspapers, and had a tact in skilfully inflaming public curiosity equal to the latter-day cunning of our most renowned showmen. M. Blanchard chose the jail-yard—or "prison-court," as it was politely called—for his place of exhibition. He was addressed, or affected to have been addressed, by various persons, for the honor of participation in the trip. To these he made replies through the newspapers, declining company, upon account of having only brought 4200 pounds of vitriolic acid with him—a quantity only sufficient to enable him to effect one ascension by himself. He said that enough vitriol to justify him in taking up another person could not be had in Philadelphia, and that to buy it would cost one hundred guineas. He proposed to receive subscriptions, at five dollars each; but finding that there was not much alacrity in embracing the opportunity, he agreed to issue tickets for inferior places at two dollars each. He estimated that five hundred first-class subscribers would be necessary to pay the expenses, and was ready to issue one thousand second-class tickets. The 10th of January, 1793, was appointed for the ascension. President Washington was present at 9 o'clock, and Fisher's artillery fired fifteen guns in honor of his appearance. From that time until the ascent, two guns were fired every fifteen minutes. Within the yard the audience was small, but outside it was immense. At five minutes past 10 o'clock, Mons. Blanchard, attired in a blue dress, wearing a cocked hat with a white feather, stepped into a blue and spangled car, attached to cords covering a balloon of yellow silk. General Washington handed him a paper, and spoke a

few words. The cords were cut, the band struck up a lively air, and Mons. Blanchard went up, waving the American and French flags. In forty-six minutes the aeronaut safely descended near Woodbury, N. J., shortly afterward was brought back to the city, and immediately called upon the President to pay his respects.

The affair, as a pecuniary enterprise, was represented to be a failure. One of the newspapers of the day apologised for the fact in this wise: "Great numbers who had neglected to purchase tickets were afflicted with considerable regret at not having been immediately present in the Prison Court, to see the preparations and witness the undaunted countenance of the man who thus sublimely dared to soar through the regions of air." Much adulation was expressed of a similar kind. The following lines, in French, appeared in the newspapers:

"Grand Blanchard, lorsque tu voleras dans les airs,
Va annoncer aux planettes de le universe;
Que les François ont vaincu leurs ennemis interieurs,
Leur intrepidité a expulc les exterieurs:
Penetre dans l'Olimpe, et dis a tous les dieux,
Que les François ont été les victorieux!
Prie Mars que les armes de la France,
Ne laisse aux tirans aucune esperance."

"Great Blanchard, as you wing your way towards the heavens, announce to all the planets of the universe that Frenchmen have conquered their interior enemies, and that those without have been repulsed by their intrepidity. Dart through Olympus, and tell the gods that Frenchmen have been victorious. Implore the aid of Mars, that the arms of France may crush the ambitious designs of tyrants forever."

Another flatterer said,

"Franklin, with a firm grasp, dared to seize the lightning in the immensity of space where it is formed. Blanchard, bold in his flight, visits those regions. He traverses them as his conquest. The glory earned by the courage and ingenuity of the French Philosopher is not eclipsed by that which the intrepid sagacity of the American Philosopher merited."

The following verses are clever:

To Mr. Blanchard, the celebrated Aeronaut, on his Ascent in a Balloon from the Jail Yard in Philadelphia, 1793.

By science taught, on silken wings
Beyond our grovelling race you rise,
And, soaring from terrestrial things,
Explore a passage to the skies.
O, could I thus exalted sail,
And rise with you beyond the jail !

Ah ! when you rose, impelled by fear,
Each bosom heaved a thousand sighs ;
To you each female lent a tear,
And held the 'kerchief to her eyes ;
All hearts still followed as you flew,
All eyes admired a sight so new.

Whoe'er shall thus presume to fly,
While downward with disdain they look,
Shall own this journey through the sky
The *dearest* jaunt they ever took ;
And choose next time without reproach
A humbler seat in Inskeep's coach.

The birds, that cleave the expanse of air,
Admiring, view your globe full blown ;
And chattering round the painted car,
Complain your flight outdoes their own ;
Beyond their track you proudly swim,
Nor fear the loss of life or limb.

How vast the height, how grand the scene
That your enraptured eye surveys,
When, towering in your gay machine,
You leave the astonished world to gaze,
And, wandering in the etherial blue,
Our eyes in vain your course pursue !

The Orb of Day, how dazzling bright!
In paler radiance gleams the Moon;
And Terra, whence you took your flight,
Appears to you a mere balloon;
Its noisy crew no longer heard,
Towns, cities, forests disappeared.

Yet, travelling through the azure road,
Soar not too high for human ken;
Reflect: our humble, safe abode,
Is all that nature meant for men.
Take in your sails before you freeze,
And sink again among the trees.

One Joseph Ravara, Consul General for Genoa, who was represented to have been a great traveller on land and water, besought the honor of adding a new distinction to his character as a voyager by a flight in the regions of air. He addressed M. Blanchard publicly, offering to take up subscriptions to reimburse him. The latter did not object. The finale of the matter was, that M. Blanchard announced that he had received for the sale of tickets, \$400; subscriptions, \$263; total, \$663. His expenses he represented to be 500 guineas; so that he was \$1580 out of pocket. Mr. Ravara did not "go up," but perhaps enjoyed as much distinction by an exhibition of his effigy, as large as life, at Bowers' wax-work show, North Eighth street, above Market, seated, with a counterfeit figure of M. Blanchard, in a car suspended from the ceiling of the room, "the American and French flags in their hands, and having on their own clothes." M. Blanchard was honored by Governor Mifflin with the use of a portion of his lot on the north side of Chestnut street above Eighth. Here the Frenchman built a rotunda, and exhibited his balloon; but some rascals threw stones against it and broke the silk; so Mr. Ravara did not ascend. Subsequently, on two occasions, Blanchard sent up a balloon with a parachute attached, having dogs and cats in the car, which was detached by an explosion, the animals descending safely to the ground. In 1794, he advertised his willingness to make an ascension if it was possible to obtain twelve pipes, or cylinder

tubes, six feet long. With such apparatus, he said he could fill his balloon with gas in two days. It was very difficult to get such work done in this country, but a proprietor of an iron-furnace undertook to do it. On the faith of this contract the aeronaut announced his forty-sixth ascension, but a day or two afterwards postponed it, declaring that an experimental trial had shown the pipes and castings to be worthless. He then gave notice that he would cease all further attempts at ærostation in this country, "until the arts are brought to such perfection as to furnish him the means necessary to success." Blanchard exhibited in his Rotunda models of balloons and mechanical contrivances. The following advertisement, published in August, 1793, is so curious that it is worthy of preservation :

A CURIOUS CARRIAGE.

MR. BLANCHARD, adopted citizen of the principal cities in Europe, Pensioner of the French Nation, Member of several Academies, &c., &c., has invented a *carriage* which runs without the assistance of horses, and goes as fast as the best post chaise. An Automaton in the shape of an eagle, chained to the tongue of the carriage, and guided by the traveller, who holds the reins in his hands, directs it in every respect. This extraordinary carriage can not only travel on all roads, but likewise ascends any mountain which is accessible to any common carriage. The distance it may proceed is unlimited, as there is no springs in the case that require winding up.

Monday, the 26th August, at half past five o'clock, at his Rotunda, on Gov. Mifflin's lot, Philadelphia, Mr. Blanchard will make two experiments; the one of Natural Philosophy, and the other of Mechanism. An air balloon of 11,498 cubic feet will be filled with Atmospheric Air in the space of six minutes, (instead of ten hours, which were required formerly,) by the help of a Machine which he has invented, and but lately brought to perfection. The Eagle fixed to the carriage beginning its flight, the carriage will come out from it, stand and run round the place, carrying two persons.

The entrance is half a dollar, the door will be opened at five o'clock, and the experiments begin precisely at half past five.

Gentlemen who have dogs accustomed to the chase are requested not to bring them along, as experiment has shown that they may prove very dangerous to the eagle, which imitates nature to perfection.

Note.—Select parties, who wish to see this experiment by themselves, will please to apply to Mr. Blanchard, at THE ROTUNDA, who will be happy to satisfy the curiosity of amateurs.

The allusion made by Fitch to "Fireworks" was caused by the success of several foreign artists who had given exhibitions in Philadelphia. Among the names of these, the most deserving of preservation are Michael Ambroise & Co., whose claims to remembrance are founded upon the interesting fact that they were the first who manufactured inflammable gas and exhibited gas-lights in America. They had an amphitheatre in Arch street between Eighth and Ninth, where they frequently displayed their fireworks. In August, 1796, they advertised an exhibition of fireworks, one part composed of combustibles in the usual style, the other of "inflammable air, by the assistance of light," as "lately practiced in Europe." Of the latter they formed "an Italian parterre," "a picture of the mysteries of Masonry," "a view of a superb country seat," "a grand portico," etc. There were eight pieces of these gas illuminations; and as they must have been produced by bending pipes in the required forms, we may suppose that Messrs. Ambroise & Co. were ingenious artists and mechanics at a time when the arts in this country were yet in a very rude state.

CHAPTER XXI.

FITCH GOES TO FRANCE — HIS RETURN — SUICIDE.

WE have now arrived at a period in the life of this ill-treated man concerning which but few facts are known. He probably remained in Philadelphia until some time in 1793. In the "American Remembrancer and Universal Tablet of Memory," by James Hardie, A. M., published in Philadelphia in 1795, is a statement that a patent was granted to John Fitch, for an improved method of distillation, in 1793. A reference to the Digest of Patents from 1790 to 1889, published by H. L. Ellsworth, under authority of Congress, does not substantiate this allegation. It is probable that Mr. Hardie, who resided in Philadelphia, knew that a patent had been applied for, and supposed it was granted. Perhaps some matter of form may have been unattended to, or the design may have been abandoned at the time. Dr. Thornton, one of Fitch's legatees, obtained a patent for an improvement in distillation in 1807; and it is possible, and not improbable, that it was the same which was referred to by Mr. Hardie.

The contract with Aaron Vail still continued in force, and the Company consented that, instead of "the mechanic" whom it was proposed to send to France to build steam-boats, Fitch should himself go.

He sailed from America in 1793.¹ He arrived at L'Orient at a time when the troubles of the Revolution agitated the French people, and when all business was suspended. "He could not obtain the pecuniary aid required for his purposes; and after exhausting his patience, and the limited means at his disposal, he deposited his papers and specifications in the hands of Mr. Vail, and crossed the Channel to England."²

While remaining in Philadelphia, Fitch had become acquainted with many of the ingenious men of his day, inventors like himself, but not so unfortunate. Among others, he was intimate with Robert Leslie, a clock and watch maker, who resided, in 1791, on the north side of Market street between Fourth and Fifth. Mr. Leslie had made some important improvements in watches and clocks, for which the State of Pennsylvania, during the existence of the Confederation, had granted him exclusive privileges. Beside his various modifications in the machinery of time-pieces, Mr. Leslie had perfected other inventions. These were, in 1792, summed up as follows :

A machine for threshing wheat on a new plan.

A horizontal tide-mill, to work with both tides.

A boat to sail directly against the wind, or in any other direction.

A horizontal wind-mill, so constructed that the wind acts on both sides of the wheel at the same time.

¹ Longstreth. Whittlesey, page 144. Watson. Duer's second letter to Colden. Dr. Thornton's Account.

² Nathaniel Cutting to Fernando Fairfax, giving the substance of a statement by Aaron Vail. (Duer's second letter to Colden, page 57, and Appendix.)

An improvement on the common wheat-fan, by which it is made to produce more wind with less labour.

An apparatus for blowing the fire of any kind of furnace by a stream of water without a bellows. The power of this contrivance may be increased to a greater degree with a given quantity of water than the same quantity could produce if applied to giving motion to a common bellows.

A machine for measuring a ship's way.

An improvement in carriage springs.

A standard of invariable length, by means of a cylindrical rod of iron, of such length as to perform its vibrations in one second of mean time.

A method of continuing the impressions in dies for coining, and other purposes, uniformly the same as they are wanted.

Several useful discoveries in mills, &c.

Beside, many improvements in time-pieces.

Early in 1793, Mr. Leslie announced his intention of leaving the United States toward the end of April of that year. His property was sold by auction on the 24th of April, and he probably left Philadelphia in the packet-ship which sailed the next month for London. This gentleman John Fitch visited after he left France, and he remained at his house in London some time previous to his departure for the United States. Here he was seen by Miss Eliza Leslie, the authoress, who yet cherishes a lively memory of the singular man.¹ Whilst in London, John Fitch published a little pamphlet bearing the following title :

¹ Mr. Leslie was a Scotsman, who came to Philadelphia in 1745. He was the father of Charles R. Leslie, the artist, Major T. J. Leslie, United States Army, and Miss Eliza Leslie. He remained in London as resident partner in England of the firm of Leslie and Price, watch and clock makers, of Philadelphia, and R. Leslie and Co., of Baltimore. Isaac Price died in 1788 or 1789, and the firm was dissolved. Mr. Leslie returned to Philadelphia in 1799 or 1800, and died there in 1803.

"An Explanation for keeping a ship's traverse at sea by the Columbian Ready Reckoner. By John Fitch. London: printed for and published by the author. 1793."

It was dedicated to Dr. William Thornton. In his introductory remarks, he says,

"Altho I never turned my attention to navigation no further than to learn the theory, yet, in crossing the Atlantick I saw on board the packet a round board, with the points of the compass cut on it, and holes in the points. I further observed that when they had run one hour they put a peg into the point they had just run.

"This gave me an Idea that something more perfect might be made; in consequence of which, I went to work and formed the enclosed plate; which, as it appears to me, will reduce the art of navigation to the comprehension of the smallest capacity, and simplify it in such a manner as to save the masters of vessels much trouble in their reckonings.

"I have in this endeavoured to bring the art of navigation into one focal point; also to make it easy to those who look upon calculations as a burthen. I do not think it absolutely necessary that masters of vessels should be obliged to study geometrical propositions, problems, drawing of lines, angles, and curves, or to tease themselves with logarithms, signs, tangents, and trigonometry, altho it would be very convenient for them to know them, but that it is sufficient for them to know these things to be so; also, that the lines and angles pointed out by these figures are more accurate than any drawn with a ruler. I therefore trust that all questions necessary for keeping a ship's traverse can be resolved by this method, and most of them in much less time than in the common way now practised. I presume that this could be learned by a moderate genius, conversant with figures, in six hours' teaching, and a very moderate share of common arithmetick will be fully sufficient for this method of navigation."

He thought that if seamen would learn it the knowledge would raise them socially, and that they would then have more respect for themselves. In reference to this view of the case, he remarks,

"It has been observed by some masters of vessels, that it would not be attended with good consequences to make every man that follows the sea a navigator, as it would be a means of destroying the subordination so very necessary to be kept on board."

"To which I beg leave to observe that, in my opinion, it would have a very different effect, for the following reasons:

"1st. Men of no ambition are never to be feared in any plot or mutiny without ambitious leaders.

"2nd. Men of an ambitious turn, who may have a prospect for an honorable command, undoubtedly would be cautious of setting such an example, which would have a tendency to destroy their views to advancement; but if after good conduct they should attain what they are aiming at, that would become a precedent at a future day to those under their command."

The explanation referred to an engraved card, on which there were four tables, containing calculations and figures. The body of the pamphlet contained directions how to work a traverse, mark directions, etc., according to the tables.

In 1794, John Fitch returned to the United States, working his passage as a common sailor. He landed at Boston in a state of destitution. He found his way to Connecticut, where he saw his sister, Mrs. King, and his daughter Lucy. Mrs. Kilbourne; but there was no reconciliation between himself and his wife.

He remained with his brother-in-law, Timothy King,

at East Windsor, for nearly two years, and then determined to seek his lands in Kentucky.¹

It is conjectured that at this time some overtures were made to him by Chancellor Livingston, whose interest in steam navigation was even at that early day exceedingly strong.

Mr. John Hutchings, a native of New York, says (see Documentary History of New York, 2d Vol., 1047) that in the summer of 1796 or '7, he, being then a lad, assisted Mr. Fitch in steering a steam-boat, and otherwise aiding in the working of the machinery. The boat was navigated upon "the Collect," a large pond of fresh water, since filled up, on a portion of the site of which is now built the City ("Tombs") Prison. Mr. Hutchings says, further, that *Robert Fulton*² and Robert R. Livingston were upon the boat several times when it was worked by steam, and that Mr. Fitch explained to them the *modus operandi* of the machinery.

"Mr. Fitch remarked to Mr. Fulton, that in a former experiment paddle wheels splashed too much, and could not be used in Canal navigation. No one at that time thought of having them covered with boxes. They had no doubt but that the boat might be propelled six miles an hour, though then making some-

¹ Longstreth. Whittlesey (Sparks), page 144.

² Mr. Hutchings is manifestly in error in supposing that one of the persons then upon Fitch's boat was Robert Fulton. The latter was at that time in England. Robert R. Livingston was, however, in New York, and was probably present. As there seems to have been two strangers at the trial, Mr. H. may have been misled into supposing that Fulton was one of them by the fact that subsequently Livingston and Fulton were connected in steam-boat experiments.

thing less. The steam was sufficiently high to propel the boat once, twice, or thrice around the pond; when, more water being introduced into the boiler or pot, and steam generated, she was again ready to start on another expedition."



John Fitch's Screw-propeller Steam-boat on the Collect, New York, 1796.

This boat was propelled by a *screw propeller*. The boiler was a ten or twelve-gallon iron pot, with a lid of truck-plank, firmly fastened to it by an iron bar placed transversely. The boat was a ship's yawl, steered by an oar.

"The cylinder was of wood, barrel shaped on the outside, and strongly hooped, being straight on the inside. The main steam pipe led directly from the boiler top into a copper box, receiver, or valve box, about six inches square. The leading pipes led separately into the bottom or base of the one short cylinder and the longer one, and each piston rod was attached to the extremity of the working beam. This beam was supported by an iron upright; the connecting rod was so arranged as to turn the crank of the propelling shaft, which passed horizontally through the stern of the boat, and was made fast to the propeller or screw. The valves were worked by a simple contrivance attached likewise to the working beam."

General Anthony Lamb and William H. Westlock, City Surveyor, of New York, both certified in 1846 to the truth of Mr. Hutchings' statement, and declared that they themselves had seen the boat moved by steam on the Collect as early as 1796.

From New York Fitch came again to Philadelphia, where he renewed his acquaintance with his friends. Whilst there he visited Oliver Evans, whose interest in the steam-engine was shown in many subsequent improvements upon that machine. In the course of the conversation, the steam-boat affair was mentioned, and Fitch divulged his hopes that he would yet be able to form a company to build boats in Kentucky. Mr. Evans relates these facts in a deposition or affidavit made December 16, 1814. The language used is as follows:

"When the said John Fitch was afterward setting out for the western country, he called on the said Oliver, at his house, and declared his intention to be, to form a Company to establish steamboats on the western waters; of the advantages of which, he appeared to have some vast conceptions and great expectations."¹

From Philadelphia John Fitch went to Kentucky; where, from the coldness of the people toward his project, he soon found that his hopes of establishing his invention on the Western waters were to be disappointed as all previous expectations had been. He found his lands overrun with squatters, and he commenced several law-suits to dispossess the intruders.² In reference to his residence there, the Hon. Robert Wickliffe, of

¹ Duer's second letter to Colden, Appendix.

² Whittlesey, page 145.

Kentucky, in a letter to a friend in Philadelphia who addressed him on behalf of the writer of these pages, furnished the following interesting particulars, under date of Lexington, November 12, 1855 :

"I remember to have seen John Fitch during his residence in Bardstown, Kentucky, but had no particular acquaintance with him personally. He was pretty far advanced in life and intemperance when I first saw him, and he was then residing in the house of Alexander M'Conn, a tavern keeper, in Bardstown, where he continued to live during the remainder of his life. I had at my Father's house, when a youth, the controversy between John Fitch and James Rumsey, as to their respective claims to the title of discoverer of the art of navigating rivers through the agency of steam, and I formed an opinion decidedly in favour of Fitch over Rumsey's claim. That circumstance, together with the rumour that he was the discoverer, induced me to inquire into the private history and life of John Fitch.

* * * * *

"Before he reached his land it had been seated and possessed by adverse claimants. He brought suits against the trespassers, and after long and protracted controversies, was successful. Those who were intimate with him assure me of their belief that Fitch's profound mortification in being compelled to abandon his steamboat discoveries, and the new difficulties and legal controversies about his land titles, broke down his spirits and disgusted him with life. McConn has often given me an account of his habits and conversations during the years he lived with him. In particular, he informed me that it was the constant burden of his conversation when free from intoxication, that he should descend to the grave poor and penniless, but should leave in his discoveries a legacy to his country that would make her rich. McConn further informed me, that when Fitch came to his house to get boarding he appeared to be in perfect health; but he told him he did not expect or desire to live long, and wanted him to board him during his life. He said he would give him one hundred and fifty acres of his land, but he must, over and above the ordinary fare of the tavern, allow him a pint

of whiskey a day. The bargain was struck, and Fitch executed his bond for the land. Under that contract, Fitch boarded with him some time — how long, I forget. One day, Fitch said to McConn, 'I am not getting off fast enough; you must add another pint, and here is your bond for another one hundred and fifty acres of land.' Both of these bonds McConn showed me, and got me to read them. Fitch continued to live with McConn, as I have before stated, until his death; when McConn caused him to be decently interred in the public burying-place at Bardstown.

* * * * *

"Poor McConn's house, with the bonds in it, was burnt up, and he was reduced to poverty. In a suit against the devisees of Fitch, he was only able to establish one of the bonds, and he got but one hundred and fifty acres. Many years ago, when I was a member of the Legislature, I visited Bardstown, called upon McConn, and asked him to designate the grave of Fitch by some stone, or other sign; and I asked him to show it to some of the young citizens of the town, which he promised to do, and I understood that he did do so. At the approaching Legislature, I introduced a resolution into the Senate, of which I was then a member, briefly reciting the character of Fitch, and his claims upon posterity, and providing that Commissioners should erect some monumental evidence upon his grave.

"Whilst the resolution was pending, I heard that a young gentleman of some talent, and a grandson of James Rumsey, was a member of the lower house, and had expressed a determination to resist the passage of the resolution, on the ground that his grandfather, and not Fitch, was the discoverer of the steamboat. I thought it best not to press the matter further, intending at some other time to take it up.

"I will now add—with a view to embody all I know of Fitch, from information or otherwise, than can be considered as connecting him with the West — some information I received from the Hon. John Brown, long a member of Congress, both in the lower house and in the Senate.

"Mr. Brown was present, and saw the experiments made by Fitch upon his boat upon the Delaware. He saw him make two

efforts to run from Philadelphia to Bordentown, and on each trip some of the machinery gave way. A few days after the last failure, a gentleman entered his room, in a boarding house in Philadelphia, and introduced himself as 'John Fitch, inventor of steamboats.' Mr. Brown asked him to be seated. As soon as he took his seat, he informed him that at a very early period, when his (Brown's) district was a wilderness, he had visited Kentucky; and I think Brown stated that Fitch said, 'while engaged in surveying on the banks of the Ohio River, that he took his seat, and for some time contemplated that beautiful river, it then rolling a full tide towards the Ocean, and reflecting upon its immense length from its head to the Ocean. He thought it impossible God had in his wisdom created a river with such length and irresistible current, without giving to man some power of overcoming the force of the water, and being able to navigate it up as well as down.'

* * * * *

"He stated that he had built a vessel, or vessels, to give practical proof to the world of the value of his invention; that the machinery of his boat, or boats, required some change or amendment, to satisfy the world that steamboats could and would navigate our rivers against their currents. This, his discovery, would be of peculiar and immense advantage to Mr. Brown's district, of Kentucky. He (Fitch) was without means or resources, and wanted about Four Hundred Dollars, and had called upon Mr. Brown, as a member of Congress from Kentucky, to advance him that sum. Mr. Brown replied that it was not convenient—that he had not the money to spare him. Mr. Fitch, rising from his seat, said to Mr. Brown, 'Well, sir, if you will not advance me the money, I will go to the Secretary of State's office, and cause it to be entered, that it may remain *res perpetua memoria*, that I, John Fitch, inventor of steamboats, having exhausted all my means in carrying my invention into perfection, needed Four Hundred Dollars to complete my work, and give evidence to the world of its value and utility; that I called upon you, John Brown, member of Congress from the Kentucky district, in the State of Virginia, to loan me Four Hundred Dollars, to complete my machinery, and give unan-

swerable evidence of the utility and importance of my invention, and that you refused it.' Mr. Brown said, 'You may do so, Mr. Fitch, if you please.' Fitch then said, 'Good morning, Mr. Brown, member of Congress from Kentucky district,' and Mr. Brown replied, 'Good morning, Mr. Fitch, inventor of steamboats.' Mr. Brown never saw Fitch again. I asked him if he had ever made examination for such entry; he said he never had. There were once afloat many anecdotes about what Fitch did or said in Bardstown. I do not think them worth notice."

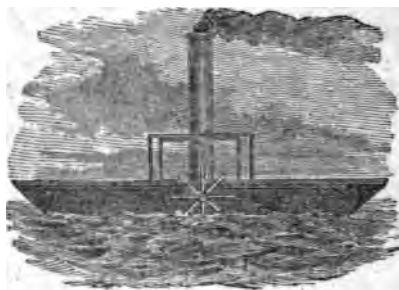
In answer to inquiries addressed to the Hon. Nathaniel Wickliffe, of Bardstown, Kentucky, he wrote, September 13, 1855, as follows:

"I regret that I can give you little information about John Fitch. He died a few years before I settled in this place (Bardstown). He died at the house of Alexander McConn, in this place. His will is dated June 25th, 1798, and it was ordered to record the 18th day of July, 1798. He appears to have owned but little estate at his death. James Nourse and John Rowan were his principal devisees. They are dead, as also those who resided here at the time Mr. Fitch was living. He was buried in the public burying ground, and until within twelve months it was not known where his grave was. It was then found, and is so described by some of the citizens, by writings filed with his will, that hereafter it can be found."

Whilst in Kentucky, the steam-boat still amused the idle hours of John Fitch.

"When his health would allow of moderate exercise, he wrought upon a model boat, about three feet in length, at the shop of Mr. Howell. Its machinery was constructed of brass. This model boat had wheels, and has been seen floating in a small stream near the village, by persons now living. It was burnt in McConn's tavern, in 1805, Nelson County, Kentucky."¹

¹ Whittlesey. Sparks' American Biography.



Fitch's Model Steamboat, Bardstown, Kentucky, 1797-8.

In reference to this presumed destruction of the model, there may be some mistake. It was very natural for many to suppose that in the fire it was consumed. The *St. Louis Democrat* of October, 1854, published an account of a model of Fitch's boat which was then in the possession of Mr. James H. McCord, United States Local Inspector for the port of St. Louis. We subjoin some extracts from that article :

“ Mr. McCord has in his possession the original model of the engine and boiler constructed by the hands of John Fitch, about the year 1790 [*quere*, 1797], and by him applied to the propelling of boats. And indeed, as appears from the model in question, it is evident that Mr. Fitch had also conceived the idea of a railway car, and reduced it to practical operation, too; but that in his efforts to bring forth the steamboat, the latter was neglected. This model rests on a model railway car, constructed by him, embracing all the essential requisites of the present railway car, such as a flange on the rim, just as we have it now, used for a guide to keep the wheel on the track; also the frame work outside the wheels, as our cars were at first constructed. It was evidently thus arranged for the purpose of exhibiting the power of steam in propelling boats; and was constructed on a railway immersed in a trough of the proper depth for the paddles to strike the water, and

when the motion was given, the wheels would guide it along the submerged railway.

* * * * *

"Mr. McCord has procured this model from Mr. C. M. Scott, of our city, whose lady is a distant relative of the family of Mr. Fitch. During a recent visit to Ohio, Mr. Scott procured it from Isaac N. Whiting, Esq., whose wife is a daughter of the late Col. Kilbourne, of that State, and grand-daughter of John Fitch; so there is no doubt of the identity of the *original model* upon which the great mind of Fitch expended its energies; the result of whose labors was the application of the wonderful agent, steam, to practical purposes.

"This interesting relic has been placed in the hands of Mr. McCord, with the promise that it shall remain in our city in the event that a Mechanics' Institute is established amongst us; otherwise, it will be deposited in Cincinnati."

If this statement is correct, the model is most probably that spoken of by Mr. Whittlesey, and may have come into the possession of the devisees of Fitch, who, it is likely, handed it over to the Kilbourne family, whose descent from the daughter of John and Lucy Fitch is undoubted.

Some time between the 25th of June and the 18th of July, 1798, this unhappy man, weary of the world, disappointed in all his expectations, yet most honestly believing in the correctness of the darling dream of his life, died at Bardstown, Kentucky.

He had been "a drinking man" while in the West, but it is believed he was not a drunkard. Indulgence in ardent spirits to some extent was at that day universal. Fitch may have exceeded in his potations the usual limits within which others, who had fewer troubles, restrained themselves, but, unless it might be in the enervation of mind caused by constant use of the

bottle, he was not a severe sufferer by strong drink. He ended his life by suicide. He had been sick for a few days, and his physician prescribed anodynes. Instead of taking these as directed, the unfortunate man kept the medicine until he saved twelve opium pills. These he swallowed at once, and so, in slumber, passed out of what, to him, had been a troublesome existence.

His will was as follows :

I John Fitch, of the County of Nelson, do make this my last Will and Testament :

To William Rowan, my trusty friend, I bequeath my Beaver Hat, Shoe, Knee, and Stock Buckles, Walking Stick, and spectacles. To Dr. William Thornton, in the City of Washington, in the District of Columbia—To Eliza Vale, Daughter of Aaron Vale, Consul of the United States at L'Orient—To John Rowan, Esq., of Bardstown, Son of said William Rowan, and to James Nourse, of said town, I bequeath all the rest of my Estate, Real and Personal, to be divided amongst them, share and share alike. And I appoint the said John Rowan, Esq., and James Nourse, Esq., my Executors ; and the Legacy hereby bequeathed to them, my said Executors, is in consideration of their accepting the Executorship, and bringing to a final close all suits at Law, and attending to the business of the Estate hereby bequeathed. Hereby declaring this to be my last Will and Testament, this twenty fifth day of June, One thousand seven hundred and Ninety Eight, Witness my Hand and Seal.

JOHN FITCH. [Seal.]

Acknowledged, Signed, and

Sealed, in presence of

James Nourse,

Mich' Reutch,

^{her}
Susannah X McCowan.
mark

At a County Court held for Nelson County, the 18th day of July, 1798,

This last Will and Testament of John Fitch, deceased, was produced in Court, by James Nourse, one of the Executors therein named, and proved by the oaths of Michael Reutch and Susannah McCown, subscribing witnesses thereto, to be the act of the said Fitch, and ordered to be recorded.

Teste,

Ben. Grayson, C. Court.

At a County Court held for Nelson County, on Tuesday, the 14th day of August, 1798, This last will and Testament of John Fitch, deceased, was sworn to by John Rowan and James Nourse, Executors therein named, and ordered to be certified.

Att. Ben. Grayson, C. Co.

Mr. Daniel Longstreth, of Bucks County, Pennsylvania, succeeded in enlisting the warm interest of John F. Watson, of Germantown, in the fate of John Fitch. Upon learning where he was buried, Mr. Watson desired to have his remains removed to Laurel Hill Cemetery, near Philadelphia; where he proposed to erect over them a monument, having the following inscription:

His darling wish (he said) was to be buried
On the margin of the Ohio;
Where the song of the boatman might penetrate
The stillness of his resting-place,
And where the sound of the steam-engine
Might send its echoes abroad.
Nihil mihi optatius accidere poterat.

“Another inscription, with like fitness, might be inscribed on the other side of his monument, equally forcible, from his own pen, to wit:”

While living, he declared,

"This will be the mode of crossing the Atlantic in time,
Whether I shall bring it to perfection or not."

"Steamboats will be preferred to all other conveyances;
And they will be particularly useful
In the navigation of the Ohio and Mississippi."

"The day will come when some more potent man
Will get fame and riches *for my invention*."¹

The proposition of Mr. Watson was interfered with by sundry gentlemen of Kentucky, who promised that they would unite in measures to have the remains deposited under a monument on the margin of the River Ohio, below Louisville. Years have gone by since that promise was made, and it has not yet been performed. He sleeps in the graveyard at Bardstown. For many years there was not a stone to mark his resting-place. Lately, the people of Bardstown have taken some pains to identify the grave of the unfortunate pioneer, who explored their lands ere Civilization took her seat. After the spot was identified, as mentioned by the Hon. Nathaniel Wickliffe, a rough, unhewn, unlettered stone, was placed upon it as a memorial. This, perhaps, is a fitting monument for genius and misfortune, neglected in life and unhonored in death.

¹ Watson's Annals of Philadelphia, Vol. I., p. 593.

CHAPTER XXII.

STEAM-BOAT EXPERIMENTS IN EUROPE AND AMERICA.

OUR task would not be complete were we to omit some reference to numerous attempts to navigate steam-boats in Europe and America, and particularly to the manner in which the biographers of Robert Fulton have endeavored to conceal the real merit of Fitch in building and successfully navigating such vessels.

James Rumsey went to England in May, 1788, having been sent thither by the Rumseian Society, to procure patents in that country, if possible. His steam-boat, which was tried at Shepherdstown in December, 1787, made no more than the short experimental trips, which demonstrated that a boat might be moved by steam. For some reason, — most probably because the projector thought it too imperfect in the machinery to be of utility, — it was then abandoned. The first successful steam-boat trips *in the world* by which passengers and freight were carried, were made on the Delaware, in 1787, 1788, 1789, and more particularly in 1790, when Fitch's boat ran as a regular packet.

In England Rumsey met with patrons, and it was determined to build a steam-boat on his plan. Before the work was completed, Rumsey fell from his chair in

an apoplexy, and died.¹ His associates completed the vessel, and it was tried on the Thames, and moved successfully, in February, 1793.² For some reason, not now known, the project was then abandoned.

There had been several patents taken out in England, previous to that time, for inventions in propelling boats, but the specifications were generally mysterious and vague, and it is impossible to know with certainty whether the claimants intended to rely upon steam.³ In 1578, Bourne obtained a patent for a boat to be

¹ Underwood's Report to Congress, Session of 1836-7, No. 317.

"Mr. Rumsey, of Maryland, who has distinguished himself by several useful mechanical inventions, and latterly by being employed in propelling vessels by the force of steam, died on the 24th of Dec. last, in London, in a sudden manner."—*Bache's General Advertiser, Philadelphia, March 5, 1793.*

² *Woodcroft's History of Early Steam Navigation.* Mr. W. says that Rumsey's principal patron was a wealthy American merchant of London.

"London, Feb. 16, 1793.—The vessel of the late lamented Mr. Rumsey, to sail against wind and tide, has lately been tried, and was found to sail four knots an hour."—*Bache's General Advertiser, April 13, 1793.* A particular description of the machinery is also given; but as it does not differ materially from that in his American boat of December, 1787, it is unnecessary to copy it.

³ A story to the effect that, in 1543, one Blanco De Garay propelled a vessel by steam in the harbor of Barcelona, has made its appearance within a few years. It was never promulgated until after steam-boats had become common in Europe and America. To account for this fact, it is alleged that the information was concealed in the archives at Simancas. The best-informed writers upon steam-engines and machinery believe the entire story to be a fabrication.

propelled by means of wheels at the sides. David Ramsay, in 1630, procured letters for a method of making ships and barges to go against wind and tide. Other secured rights were obtained for methods of propelling boats, by Thomas Grent, in 1632, Francis Lin, in 1637, Edward Ford, 1640, the Marquis of Worcester, 1667, and Thomas Toogood, for forcing water out of the stern of a vessel by a bellows, 1661. In 1682, a horse-boat, moved by wheels at the side, was tried at Chatham, and used as a tow-boat. In 1730, Dr. John Allen proposed to move a boat by pumping in water and ejecting it from the stern, and suggested a steam-engine for the purpose. Rumsey's boat seems to have been precisely the same. Jonathan Hulls produced the first specific plan for navigating a tow-boat by steam in 1736. It was to be moved by paddle-wheels, and Hulls had a scheme for converting a reciprocating rectilinear motion into a rotary one, by fixing two cranks to the hindmost axis, to which were to be affixed two shafts or poles, of proper length, to reach to the bottom of the river. These were to be moved alternately forward by the motion of the wheels, by which the vessel was to be carried on, so that the cranks received the rotary motion *from* the axis, which latter did not impart it.¹ It does not appear that any boat was ever built by Hulls. He was merely a projector. All these plans were rendered inoperative by the ignorance of the parties as to the means of converting the rectilinear into a continued circular motion.

¹ For an account of this and the other inventions mentioned in the foregoing paragraph, see Woodcroft's *History of Early Steam Navigation*.

James Watt, in 1769, first discovered a means of making the steam act above the piston as well as below, and this double action rendered the steam-engine capable of propelling a steam-boat.¹

It is asserted that Count Auxiron made some experiments on the Seine in 1774, aided by Perrier, and that the latter repeated the trial the next year with more success.² In 1782, De Jouffroy, on the Saone, moved by steam a boat one hundred and forty feet long, which had paddle-wheels on the sides. Beyond the demonstration of the practicability of the plan, nothing was done by this inventor.³

Next to these comes John Fitch, who was not satisfied with mere experiments, but labored assiduously at Philadelphia, from 1785 to 1792, to demonstrate the extent to which his invention might be carried. The skiff-boat, moved by the model engine with three-inch cylinder, in July, 1786, was succeeded by the large boat, propelled by a twelve-inch cylinder, in August, 1787. Passages were made to and from Burlington, in the summer and fall of 1788, several times. In 1789, there were more trials, but in 1790 the machinery was perfect, and the packet steam-boat performed her work promptly, and went from two to three thousand miles, to the comfort and accommodation of all who patronized her.

Whilst this ingenious American was industriously engaged in trying to convince his countrymen of the applicability and value of his invention, experiments upon steam-boats were being made in Scotland.

¹ Woodcroft.

² Stewart's Anecdotes of Steam-engines, p. 283.

In 1787, Patrick Miller, of Dalwinston, Scotland, built a boat to be propelled by paddle-wheels at the sides. He made an experiment on the Frith of Forth, in June of that year; *not* with a steam-engine, however, but by the application of the power of *men*, who worked a capstan. Steam was suggested to him by James Taylor, and William Symington, an ingenious young man, undertook to apply that power as a means of propulsion. About the beginning of October, 1788, two years after Fitch's first experiment on the Delaware, and ten months after Rumsey's boat was propelled on the Potomac, Miller and Symington put in motion the first steam-boat which had been *built* in Great Britain. It was a double pleasure-boat; or rather it was composed of two boats, connected by a flooring, the paddle-wheel working in the middle. This pioneer was made and tried on a lake on the estate of Mr. Miller, at Dalwinston. Encouraged by success, the parties set to work to build another boat, which was tried on the Forth and Clyde canal, on the 26th of December, 1789, and moved at the rate of seven miles an hour in the still water.¹

The experiment made by Rumsey's associates on the Thames, in 1793, has been spoken of. The English writers declare that the first "practical steam-boat" built in the Kingdom was the Charlotte Dundas, constructed by Symington. Fitch's steam-boat in 1789 and '90 was most certainly *practical*.

Before Symington's boat had been built, the United

¹ Woodcroft.



The Charlotte Dundas, William Symington's Steam-boat—Scotland, 1801.

States were again distinguished by the successful labors of a builder of steam-boats.

In 1790, Samuel Morey began to experiment upon steam-boats in the vicinity of the Connecticut River. He went thence to New York, and for three successive summers tried many plans of modifying steam-engines for propulsion, and in testing the power of propellers. He took his boat back to Hartford in 1793, and having completed it, took it to New York the next summer. It was propelled by a wheel at the stern, at the rate of five miles an hour. Chancellor Livingston, Judge Livingston, Edward Livingston, John Stevens, and others, were on board when it went by the force of steam from the ferry at New York to Greenwich. Livingston offered to assist Morey if he could make the boat go at the rate of eight miles an hour. Perhaps stimulated by that offer, Morey went to the Delaware, and, aided by assistance from Dr.

Burgess Allison, built a boat near Bordentown, New Jersey, with paddle-wheels at the sides. "The shaft moved across the boat with a shackle-bar, commonly so called, which moved on the principle which is now [1819] used in the largest boats." This boat was used with perfect success, and in 1797 was propelled to Philadelphia.¹ Want of funds prevented its being brought into public use.

In the Augusta [Georgia] Chronicle, published September 22d, 1792, William Longstreet, of Augusta, announced that he had invented a new steam-engine, of a very simple construction. He believed that it might be advantageously employed in the propulsion of a vessel, but such was the foolish prejudice against steam-boats then prevalent, that he scarcely dared to do more than to hint the applicability of his engine for such a purpose. He said,

"Such is my confidence with respect to the success of this machine, that I will venture to aver that for £500 one may be made, and kept in repair four years, that will be capable of grinding one hundred and fifty bushels of grain per day, or saw two thousand feet of inch boards in the same time; and I would add, if it was not *for fear* of being accused with a *baloon* or *steamboat project*, how easily could I apply it to *boating*!"

In 1804, Oliver Evans, whose ingenuity and application to the improvement of the steam-engine have been useful and honorable to his country, constructed, at Philadelphia, a machine for cleaning out and deepening docks, which he called the *Eruktor Amphibolis*. Evans declares that he thought of propelling carriages

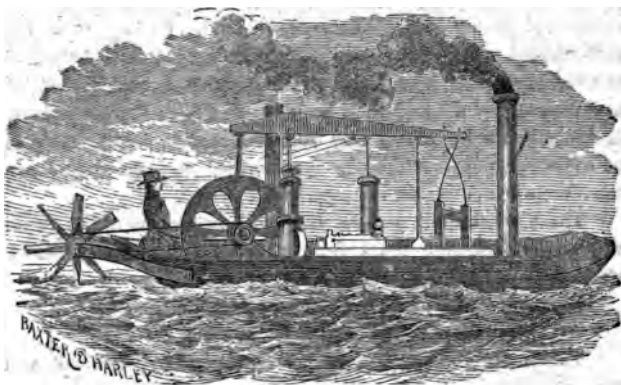
¹ Duer's second letter to Colden, Appendix.

by steam as early as 1793, and of applying the same power to boats in 1778—certainly prior to 1771; but as John Fitch had spent much time and money in attempting to demonstrate the invention, “he yielded to him and his associates all the honors and profits justly due them as the original inventors.” When the *Eruktor* was completed, Evans determined to show his incredulous fellow-citizens that it was possible to move wagons on the land and boats on the water by the power of steam. The mud-scow had a steam-engine in it, of the power of five horses.

“To show that both steam carriages and steam boats were practicable (with my steam engine), I first put wheels to it, and propelled it by the engine a mile and a half, and then into the Schuylkill, although its weight was equal to 200 barrels of flour. I then fixed a paddle wheel at the stern, and propelled it by the engine down the Schuylkill and up the Delaware, 16 miles, leaving all the vessels that were under sail full half way behind me (the wind being ahead), although the application was so temporary as to produce great friction, and the flat most illy formed for sailing; done in the presence of thousands.”¹

It is very likely that Evans was induced to undertake this remarkable experiment in order to convince the world that some of the scientific men of the day were visionary pretenders. Scarcely a year previously, Benjamin H. Latrobe, whose name stood fair as a philosopher, had gone out of his way to pronounce an opinion that the navigation of steam-boats to advantage was an impossibility. A society in Rotterdam had made

¹ Oliver Evans to the people of the United States. Poulson's *American Advertiser*, March 11, 1815.



The Eruktor Amphibolis. Oliver Evans, Philadelphia, 1804

inquiry of the American Philosophical Society, to know how many steam-engines were in use in the United States. Mr. Latrobe was appointed Chairman of the Committee. He accomplished his task by reporting that there were six steam-engines in the country, but he went on to demonstrate that steam-boats must fail. His language upon the subject was as follows :

“During the general lassitude of mechanical exertion which succeeded the American Revolution, the utility of steam engines appears to have been forgotten ; but the subject afterward started into very general notice in a form *in which it could not possibly be attended with success*. A sort of mania began to prevail, which has not yet entirely subsided, for impelling boats by steam engines. Dr. Franklin proposed to force the boat forward by the immediate application of steam upon the water. Many attempts to simplify the working of the engine, and more to dispense with the beam in converting the *vibratory* into a rotary motion, were made. For a short time, a passage boat, rowed by a steam engine, was established between Bordentown and Philadelphia, but it was soon laid aside. The best and most

powerful steam engine which has been used for this purpose—excepting, perhaps, one constructed by Dr. Kinsey, with the performance of which I am not sufficiently acquainted—belonged to a Gentleman of New York. It was made to act, by way of experiment, upon oars, upon paddles, and upon flutter wheels. Nothing in the success of any of these experiments appeared to be sufficient compensation for the expence and the extreme inconvenience of the steam engine in the vessel.

“There are, indeed, general objections to the use of the steam engine for impelling boats, from which no particular mode of application can be free. These are,

“First, the weight of the engine and of the fuel.

“Second, the large space which it occupies.

“Third, the tendency of its action to rack the vessel, and render it leaky.

“Fourth, the expence of maintainance.

“Fifth, the irregularity of its motion, and the motion of the water in the boiler and cistern, and of the fuel vessel in rough water.

“Sixth, the difficulty arising from the liability of the paddles and oars to break, if light, and from the weight if made strong.

“Nor have I ever heard of an instance, verified by other testimony than that of the inventor, of a speedy and agreeable voyage having been performed in a steamboat of any construction.

“I am well aware that there are still many respectable and ingenious men who consider the application of the steam engine to the purpose of navigation as highly important, and as very practicable, especially on the rapid waters of the Mississippi, and who would feel themselves almost offended at the expression of an opposite opinion. And perhaps some of the objections against it may be avoided. That founded on the expence and weight of the fuel, may not for some years exist on the Mississippi, where there is a redundancy of wood on the banks; but the cutting and loading will be almost as great an evil.”

These oracular opinions were expressed with great flippancy, but it is evident that Mr. Latrobe had very

little knowledge of the subject on which he wrote. The performance of "the passage boat" on the Delaware could only have been known to him by prejudiced report, and he seems to have been entirely ignorant of the fact that some of the officers and most distinguished members of the American Philosophical Society had certified that the boat in question was not only successful and speedy, but an agreeable means of conveyance.

Among others who experimented in this country before the beginning of the present century, was Nicholas I. Roosevelt, under the patronage of Livingston. It was for his benefit originally that Livingston procured, in 1798, a transfer of the rights of John Fitch, under the law of New York. When Livingston went to France, Roosevelt was abandoned, and Fulton was taken in favor. The experiments of Roosevelt were made with paddle-wheels.

In May, 1804, John Cox Stevens, who afterwards obtained in England a patent for a steam-boat, went from Hoboken to New York in a steam-boat propelled at the stern, and subsequently made an excursion of two or three miles up and down the river Hudson.¹

¹ Stewart's Anecdotes of Steam-engines. Woodcroft.

John Stevens was one of the signers of the recommendation that the Legislature of New Jersey should pass a law giving exclusive rights to Fitch. His attention seems to have been turned to steam navigation from that time. He was engaged in experiments in 1790, and claimed a federal patent. He was the father of John C. Stevens, here spoken of. Charles King, LL. D., President of Columbia College, New York, in a lecture delivered in 1851, before the Mechanics' Society of that city, said, "In 1804, Col. [John Cox] Stevens, whose fertile and ingenious

We now come to Robert Fulton ; a man original in many things, but who, as the introducer of the steam-boat, merely availed himself of the fruits of the labors

mind was specially turned to the mechanical inventions, had constructed and put into operation a steam-boat, of which the motive power was a propellor—the propellor which at this day, I believe, is admitted in form and proportion to be the best. The boat was a small one. In it Col. Stevens put an engine with tubular boilers.

* * * * *

“The machinery, made under his own direction, and at his own shop at Hoboken, set in motion two propellers, of five feet diameter each, and each furnished with four blades, having the proper twist,—to obtain which he had the greatest difficulty with his workmen,—and set at an angle of about thirty-five degrees. This vessel, used only for testing the possibility of steamboat navigation, so completely demonstrated the fact, that Col. Stevens applied it on a larger scale, in 1806, to a piroque, 50 feet long, 12 wide, 7 deep, which attained very considerable speed. Encouraged thereby, he commenced the Phoenix, with side wheels. * * * * * It is a proof of the remarkable accuracy and skill of the Hoboken workshop, that the engine of the first small propellor, carefully preserved, was set up again not more than 10 or 12 years ago, and, without altering a screw, worked most successfully.

* * * * *

“Mr. Stevens produced, independently of Fulton’s plans and experiments, his steamer Phoenix ; but, precluded by the monopoly which Fulton’s success had obtained for him of the waters of New York, Mr. Stevens first employed her as a passenger boat between this city and New Brunswick, and finally conceived the bold purpose of sending her round to Philadelphia by sea, and he executed it successfully. His son, Robert L. Stevens, went round with the boat in the month of June, 1808. A fierce storm overtook them. A schooner in company was driven off to sea, and was absent many days ; but the Phoenix made a safe harbor at Barnegat ; whence, when the storm abated, she pro-

and successes of the ingenious men in America and Europe who had toiled before him.

In 1785, Robert Fulton was living at Philadelphia. The City Directory for that year has his name thus :

ROBERT FULTON, miniature painter, corner of second and Walnut Street.

ceeded safely to Philadelphia, and plied many years between that City and Trenton. Mr. Stevens thus earned indisputably the honour of *first venturing to encounter the might of Ocean* successfully with a steam propelled vessel. When the Phoenix went round to Philadelphia, the Atlantic, and no other sea, had ever known the domination of victorious steam.

* * * * *

"It was again reserved to Stevens, after long and numerous experiments, carefully conducted and tested, as to form of vessel best calculated to overcome the resistance of the dense medium through which it was to make its way, to send forth on the Hudson a boat as superior in size and equipment, as in speed, to all before it, and to travel at the rate of $13\frac{1}{2}$ miles per hour. Even that is now slow; and the one hundred and fifty miles which separate us from Albany are passed over by the steam-boats—not one, but many—in eight or nine hours; and the actual rate of nineteen or twenty miles the hour has been attained by some of the later boats.

"But when the New Philadelphia, R. L. Stevens' boat, in 1814, started off at the rate of $13\frac{1}{2}$ miles per hour, even the senses were distrusted; philosophy, which had calculated the resistance of the medium to the forms then used, was at fault, and what had been actually done was pronounced impossible. But the steady, far-reaching mind of the younger Stevens, knew the secret of his success—that it was due to the form which he had given his vessel. He saw, too, after some trips, that even that form was far from the perfection he had designed, and accordingly went to Brown & Bell, eminent ship builders, and begged them to put in the New Philadelphia a sharp, false bow, of which he gave them a drawing. After considering the proposition, they de-

In the preface of this Directory, it is stated that the names were taken September, 1785. This was after Fitch's application to Congress, and after he had laid his drawings before the American Philosophical Society. How long Mr. Fulton remained in Philadelphia, is not specified by his biographers. A deed for a small farm, which he bought for the use of his mother, bears date May 6, 1786. After that time, Mr. Fulton removed his mother and her family to the property, which was in Washington County, Pennsylvania, at a considerable distance from her former residence in Lancaster. Having then visited the Warm Springs, Virginia, he returned to Philadelphia, and after some time went to England.¹ It is very probable, from all these circumstances, that Fulton did not leave the United States until some time in the fall of 1786 — long after Fitch's scheme had become well known, by application to Congress, and the legislatures of Virginia, Maryland, Pennsylvania, and New Jersey, after the formation of the Steam-boat Company, and after the skiff steam-boat had been successfully tried on the Delaware. The experiments then made were notorious, and they could not have been disregarded by a person of Mr. Fulton's turn of mind.

The English writers declare that in 1801 Mr. Fulton

declined, declaring themselves unwilling to encounter the ridicule of what struck them as so unseemly a work, and Mr. Bell added that it would be called 'Bell's nose,' and would become a general laughing stock. Repulsed, but not disconcerted, young Stevens, sure of his own conclusions, built a false bow at his own shop, put it on, and obtained in consequence an additional speed of several miles the hour."

¹ Reigart's Life of Fulton, page 40, et supra.

visited Symington's boat on the Forth and Clyde Canal; that he introduced himself by name, and declared that he had a great curiosity to see the performance of the vessel. To gratify him, the boat was put in motion, and with Fulton on board, it was propelled from lock 16, four miles west, and returned to the starting-place. The speed was six miles an hour. Fulton took drawings of the machinery. This is declared in affidavits made by Robert Weir and Jacob Perkins.¹

Beside this assistance from Symington and Miller, it has been successfully shown that Fulton inspected and had possession of the drawings and papers of John Fitch, which were left with Aaron Vail in France.

Nathaniel Cutting, in a letter to Fernando Fairfax, gives the substance of a conversation with Mr. Vail on the subject.² The latter, in speaking of Fitch and his experiments in the United States, said,

"Mr. Fitch came to France in pursuit of this object, but could not obtain the pecuniary aid required for his purpose; and after exhausting his patience, and the limited means at his disposal, he deposited his specifications and drawings in the hands of Mr. Vail, and quit the pursuit in France.

* * * * *

"Mr. Vail further remarked that he himself was not sufficiently acquainted with mechanics to know whether or not the mechanism now intended to be used by Mr. Fulton was the same in principle with that formerly invented and used by Mr. Fitch; but it might be the same, for aught he knew, for *he had lent to Mr. Fulton, at Paris, all the specifications and drawings of Mr. Fitch, and they remained in his possession several months; and*

¹ Woodcroft, pages 64, 65.

² Duer's second letter to Colden, page 57.

doubtless a man of Mr. Fulton's ingenuity would not fail to profit by any new and useful combination of the mechanical power that he might then discover, *especially as he might suppose no one living would convict him of the plagiarism.*"

Mr. John D. Dickinson, in a letter to William A. Duer, dated Troy, November 17, 1818, says,

"I saw James Vail, who resided with his uncle, Aaron, at L'Orient, when Chancellor Livingston arrived in France. He [James Vail] had often seen and examined Fitch's papers and designs about his steam-boat. He had frequently heard the Chancellor and Aaron Vail conversing on the subject. He don't recollect seeing the papers shown to Livingston, but has no doubt they were."¹

In reference to this matter, Noah Webster, the distinguished lexicographer, in a letter to R. W. Griswold, dated December 18, 1839, said,

¹ "My father, the late Dr. Cartwright, whose various mechanical inventions, especially the power loom, are well known to your scientific readers, has frequently told me, when I was a boy, that I should live to see vessels on the water, and carriages on the land, impelled by steam; and that he had no doubt but that the use of horses for this latter purpose would be superseded altogether. About 45 years ago, he had a model of a steam-engine constructed, which was to be attached to a barge; and I perfectly recollect the general principle of it, being the same as those now in use. The model was laid by, and he did not take any steps for making his invention more fully known. In the year 1799, he became acquainted with Mr. Fulton, an American engineer, to whom he gave the plan or model of the steamboat; which I have been informed was first used in America by Mr. Fulton, who had the credit of the invention.

"As none of my father's family are likely to enjoy any benefit from his inventions beyond the fame of them, I have thought it right to state these particulars in justice to his memory and for the satisfaction of his descendants. EDM. CARTWRIGHT."

Gentleman's Magazine (London), Feb., 1832, page 108.

●

"About that time [after Fitch's experiments on the Delaware], the Company aiding Mr. Fitch sent him to France, at the request of Mr. Vail, our Consul at L'Orient, who was one of the Company. But this was when France began to be agitated by the revolution, and nothing in favour of Mr. Fitch was accomplished. He therefore returned. Mr. Vail afterward *presented to Mr. Fulton for examination the papers of Mr. Fitch, containing his scheme for steam navigation.*"¹

Armed, thus, with the plans of Fitch, Symington, and Cartwright, and aided by the instruction of Chancellor Livingston as to what he had himself learned of the boat of Morey, of Fitch on the Collect, New York, of Roosevelt, and of Stevens on the Hudson, Mr. Fulton commenced experiments, in 1803, on his *original* invention at Plombieres.

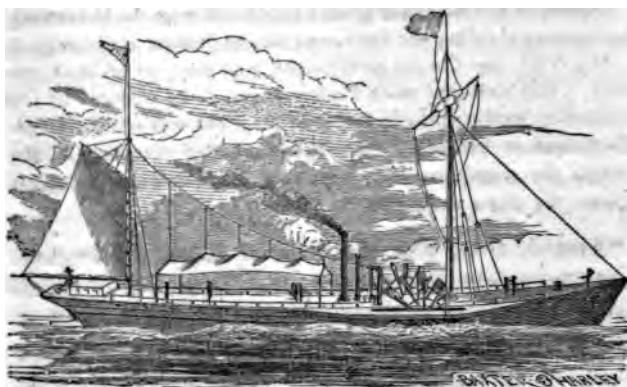
Afterwards, procuring a steam-engine of James Watt, the great improver of these machines, and adapting all the improvements made by others, he succeeded in propelling the Clermont, on the Hudson, in 1807, at the rate of four miles an hour.

The extent of his claims as an original inventor are thus concisely summed up by Mr. Woodcroft.

"He had a cylinder, with steam acting on each side of the piston, the air pump, and detached condenser (Watt's invention), connecting rods, and cranks, to obtain a rotary motion, and a fly wheel, to get over the dead point (Pickand's invention), improved paddle wheels (Miller's invention), and the combination of these instruments together for the first time (Symington's invention). In fact, if these inventions, separate or as a combination, were removed out of Fulton's Boat, nothing would be left but the hull."²

¹ Duer's second letter to Colden.

² History of Early steam Navigation, page 64. See Stewart's Anecdotes of Steam-engines, to the same point.



The Clermont, Robert Fulton's Steam-boat—New York, 1807.

Robert Fulton had what John Fitch had not—a rich, enthusiastic, liberal, influential patron. Chancellor Livingston was willing to put up with a boat going at the rate of five miles an hour; Fitch's Company were dissatisfied with one which progressed seven and eight miles in the same time. Fulton had the very best machinery that could be made in Europe; Fitch made his own, by the aid of common blacksmiths, roughly, and had to experiment as he went on, to discover the relative positions and influences of the various parts of the engine and rowing apparatus upon each other. Fulton began after years wasted by other men in trials by which he profited; and, appropriating to himself the principles made manifest by the results of their toils, disappointments, and losses, is now held out to the world as the original inventor of steam-boats. Against such rank injustice, the facts set forth in these pages will continually protest.

We have said that John Fitch procured a law from

the State of New York, protecting him in his invention of the steam-boat. In 1798, application was made to the Legislature of that State by Robert R. Livingston, representing that himself and others associated with him had gone to great expense in making experiments upon steam-boats, but were hindered from prosecuting them by the previous law, giving special rights to John Fitch for fourteen years. It was suggested that Fitch was dead, or that he had left the commonwealth, and that it would be for the public advantage to repeal the law. Under these representations, the Assembly of New York repealed the act in favor of Fitch, and transferred all the rights granted therein to Livingston and his associates for the term of twenty years, upon condition that they should in two years build a boat to progress by steam not less than four miles an hour.¹ This condition was not complied with; and the law was extended from time to time, until Fulton fulfilled the terms by navigating the Clermont to Albany in 1807;² the privileges having also been so extended that the law had then seventeen years to run.

¹ This law is entitled, "An Act repealing the Act for granting and securing to John Fitch the sole right and advantage of making and employing the steam-boat by him lately invented, and for other purposes." The *other purposes* were the re-grant to Livingston.

² It is a fact in no way creditable to the biographers of Fulton, that they disingenuously conceal the manner in which this law was obtained by taking away the privileges granted to John Fitch. Mr. Colden speaks of it as if it was an original law, granting privileges to Livingston and his companion, when in fact it was only an *assignment* or transfer of the rights of Fitch. Although Mr. Duer exposed this injustice in his two "Letters to

Fulton and Livingston did not attempt to obtain a patent from the United States as soon as they had shown the practicability of the Clermont. Probably thinking that the act originally passed in favor of Fitch in the State of New York, which had been appropriated to their use, was better, they made such a monopoly under it that opposition was interposed by those who were interested in navigation. Under the patent-law, in proceedings for infringement, Messrs. Fulton and Livingston would have been compelled to submit the originality of their invention to the law, and to be satisfied with such damages as might be allowed them. But under the Fitch law, they were empowered to seize and forfeit any boat impelled by the power of *fire* and *steam*, without their license, no matter in what manner those forces were applied, together with one hundred dollars penalty for every infraction.¹

Colden," Mr. Reigart, the latest biographer of Fulton, has followed the same course. He speaks of the New York law as if an original bill had been presented by Dr. Mitchell, and quotes an anecdote, to the effect that "the wags of the house laughed at it as a thing unworthy of attention." How the *wags* could sneer in that manner at a law already in existence, the biographer does not undertake to explain.—*See Reigart's Life of Fulton*, page 163.

¹ The profits of Fulton and Livingston must have been very considerable. They announced by advertisement in the Philadelphia *Aurora*, in June, 1812, that they would grant licenses for building and navigating steam-boats in any part of the United States. The conditions were, that, out of the gross receipts, ten per cent. on the cost of the boats was to be retained by the builders. All receipts beyond ten per cent. were to be

The originality of Fulton was disputed ; but, armed with the powers of the statute, he and his associates fought stoutly against all opposition. As early as 1810, a company was formed at Albany, to run a line of steam-boats to New York. Livingston and Fulton applied to the Chancellor of the State for an injunction against those who were interested in the scheme. The Chancellor refused to grant the application, declaring that the law was invalid, being superseded by the patent-laws of the United States. This decision was reversed in the Court of Errors. The claimants under the Fitch law were not satisfied with the triumph thus gained, and they procured from a pliant Legislature the passage of an act making it *obligatory* on the Chancellor to grant an injunction whenever the claimants under the steam-boat Act required it. The dispute would probably have been taken to the Courts of the United States, but Fulton and Livingston were too wise to risk the chances of such an arbitrament. They compromised with the Albany Company, and gave them full license to run their steam-boats on Lake Champlain.

The people of New Jersey found the New York statute particularly onerous, as it precluded them from navigating the Hudson, a boundary of their own State. Laws were therefore passed to retaliate against Livingston, Fulton, and the New York steam-boat owners. Foremost among their opponents was Colonel Aaron Ogden, of Elizabethtown, who owned an ancient ferry

divided — one-half to the builders of the steam-boat, the other half to Fulton and Livingston. If the receipts were less than ten per cent., Fulton and Livingston were to have no dividend.

between that place and New York city. He procured a steam-boat, to be built after the plan of Daniel Dod,¹ and his effort caused a very bitter controversy. In 1815, application was made to the Legislature of New Jersey, by Fulton and his associates, to repeal the law which was passed in retaliation against the New York statute. Colonel Ogden and others strongly opposed it. Testimony was given by John Wilson, Mr. Ewing, Captain Deklyn, and Nathan Wright, in relation to the steam-boat of Fitch. The matter was discussed before the Legislature by Thomas Addis Emmett on the part of the New York petitioners, and by Samuel L. Southard, Joseph Hopkinson, and Colonel Ogden, on the other side.

The MS. journals of John Fitch were before the Legislature. They are spoken of several times in the sketch of "the steam-boat case," published at Trenton in 1815. Reference is made to peculiar language of Fitch, which is found in his manuscripts as they are in the Philadelphia Library. The minutes of the Directors of the Company do not refer to this matter in any way. It is impossible, however, to resist the belief that, although the thirty years specified by Fitch had not elapsed, the seals were broken and the manuscripts used. They must have been immediately resealed and returned to the Library, as the Directors of 1823 seem to have been ignorant of the fact that the original enclosure had ever been opened. It is proper to say that the letter of Fitch to the Librarian, in 1792, gave full authority to break the seals whenever, in the opinion

¹ Daniel Dod, of Mendham, New Jersey, procured a patent for navigating boats by steam, February 2d, 1814.

of the Directors, it was deemed proper to do so for the maintenance of his reputation and rightful claims. Although this act was informal, those who did it were carrying out the true spirit of the trust, in thus permitting the papers of Fitch to vindicate his claims against "some other man," who was trying to "obtain fame and honor" from *his* "invention."

The matter was eventually made a subject of party discipline; and under that pressure, the law vindicating the rights of New Jersey was repealed.¹

This circumstance nerved Colonel Ogden to fresh exertions. An administrator to John Fitch was raised in New Jersey, who sold to Colonel Ogden all the rights of the deceased in the steam-boat, it is said, for ten dollars. The whole affair was manifestly illegal. The old Steam-boat Company owned the patent, and Fitch at his death had no interest therein except as a shareholder. In addition to that, whatever property he may have had in the invention belonged to the legatees under his will. These matters were not canvassed by Ogden's opponents, and the movement served its purpose to strengthen the claim of the enemies of Fulton. Application was soon made by Colonel Ogden, as a citizen of New Jersey, and as the representative of John Fitch, to the Legislature of New York, requesting that the obnoxious law should be repealed. The memorial was referred to a Committee, of which William A. Duer was Chairman. Fulton and Livingston were represented by Cadwalader D. Colden and Thomas Addis Emmett. The evidence before this Committee was somewhat like that given before the

¹ History of the Steam-boat Case, Trenton, 1815.

Legislature of New Jersey. In addition, Governor Bloomfield, of New Jersey, testified that he had frequently been a passenger in Fitch's boat on the Delaware. After investigation, the Committee reported in favor of a repeal of the law, on the ground that "the steam-boat of Robert Fulton was, in substance, the invention patented by John Fitch in 1791;" that the patent to Fitch had expired, and that any citizen of the United States had a right to make use of the discovery.¹

The Committee, in justification of this opinion, declared that,

"In Fitch's boat, the cranks of the axle beam were connected with a frame, from which paddles were suspended perpendicularly, acting on an elliptical line in the water; whilst in Fulton's, the axle was attached to a vertical wheel, with paddles or buckets firmly fixed in the periphery. In both the motion of the axis itself was rotatory."²

After the death of Mr. Fulton, his counsel, Mr. Colden, wrote his biography, and alluded to the report of the Committee of the Legislature of New York in terms which seemed to be colored by the zeal of the advocate rather than by the impartial spirit of the historian. To the attack thus made, Mr. Duer, who had been chairman of that Committee, published an answer, which was printed in Albany, in 1817, entitled, "A Letter addressed to Cadwalader D. Colden."

In 1818, Mr. Colden published a reply, entitled,

¹ New York Review, Vol. IV., page 148. Duer's first letter to Colden.

² New York Review, Vol. IV., pages 153, 154. Duer's first letter to Colden.

"A Vindication, by Cadwalader D. Colden, of the Steam-boat Right," etc.

Mr. Duer followed, in 1819, by "A Reply to C. D. Colden's Vindication," etc.

For the sake of convenience when referring to them, we have spoken of these as Duer's first and second letters to Colden, and as Colden's reply to Duer. In these publications the whole matter was discussed, and additional evidence was brought forward by Mr. Duer to sustain the claims of John Fitch.

The Legislature of New York refused to adopt the report of the Committee against the validity of the act relied upon by Fulton. Colonel Ogden would probably have contested the matter further, but he, too, was brought over to the adverse interest. The claimants under Fulton *compromised* with him, as they had done with the Albany Company, and he also run his boats from Elizabethtown to New York under the banner of the monopoly.¹

Some time afterward, one Thomas Gibbons came to Elizabethtown, New Jersey, and purchased an interest in an ancient ferry to New York. He resolved to employ steam-boats; and, oddly enough, his right to do so was contested by Colonel Ogden, the owner of a rival ferry, who now fought as stoutly for the Fulton and Livingston claimants as he had formerly battled against them. Gibbons was armed with legal opinions that the New York law was unconstitutional, and he resolved to contest its validity to the uttermost.¹

The controversy was at length taken into the courts, and some lawsuits which arose under it will be found

¹ New York Review, Vol. IV.

reported in the cases, *Gibbons vs. Ogden*, 1 Halstead 285, 2 Halstead 122, 3 Halstead 288, 2 Southard 161, 6 Wheaton 448, 9 Wheaton 1.

Finally, the question was authoritatively settled by the Supreme Court of the United States: 9 Wheaton, page 1. It was declared that the power of regulating commerce, given by the Constitution of the United States, included in it the right to regulate navigation; and that the law of New York was unconstitutional, so far as it prohibited vessels licensed according to the laws of the United States from carrying on a coasting trade, and from navigating those waters by fire or steam. With this decision the monopoly under the State law fell, and Fulton and Livingston were compelled to rely upon their patent obtained in 1811.

CHAPTER XXIII.

STEAM-BOAT AFFAIRS IN THE UNITED STATES AFTER
FULTON'S EXPERIMENTS.

THE experiment of Fulton aroused attention in various parts of the country to the claims of John Fitch and his associates. Dr. William Thornton, in 1810, felt himself bound to vindicate the reputation of his old associate. The Doctor was then the Superintendent of the Patent-Office, and was thoroughly conversant with the subject of steam-engines. In 1814, he published a small pamphlet, entitled "a short account of the Origin of Steam-boats, written in 1810, and now committed to the press by W. Thornton, of the City of Washington." He commenced his statement in these words :

"Finding that Mr. Robert Fulton, whose genius and talents I highly respect, has by some been considered the inventor of the steam-boat, I think it a duty to the memory of the late John Fitch, to set forth, with as much brevity as possible, the fallacy of this opinion ; and to show, moreover, that if Mr. Fulton has any claim whatever, it is exceedingly limited."

Quotations from this pamphlet have been made in appropriate portions of these pages. The following gives the reason of the final failure of the old Steam-boat Company. It also controverts the idea that Mr.

Fulton was entitled to any merit for the employment of paddle-wheels at the sides of his boat, and shows that Fulton was indebted to Fitch for the *proportions* of his vessels :

" Finding that the works on board the first boat were not strong enough, we built another, of twenty five tons burthen, rigged schooner fashion, intended to go to New Orleans, and mount the Mississippi. When the principal parts of the works were prepared, and ready to be put on board, the author of this, thinking that no mistakes could be made by the Company, went to the West India, on the 16th of October, 1790, to visit his mother for the last time, and expected to find on his return the boat ascending the Mississippi at the rate of at least four miles an hour; but a spirit of innovation having seized some of the Company, and their attempts to simplify the machine having ruined it, their unsuccessful endeavors to make it work subjected them to debts, which obliged them to sacrifice both boats and all the machinery; and on my return, after a two years' absence, I found, to my inexpressible grief, the whole of this very valuable scheme ruined. I had only, then, to wait until the patent taken out from the United States during my absence, for the benefit of the Company, by Messrs. Fitch and Voight, in the year 1791, expired, and to take out a patent for those peculiar improvements which I had invented or suggested. Finding Mr. Fulton about to take out a patent after he had examined every thing in the patent office relative to steamboats and steam engines, and not knowing whether he might recollect, among so many, those I had shown him of my own invention, I thought it proper to take a patent for them previous to a sight of his papers, or of any hint of what they contained; and I believe he will do me the justice to say I never saw one of his, nor had a hint of what they were, before my patent from the United States was issued. I find Mr. Fulton's patent rests principally on proportions, though the second section of the law expressly excludes proportions.¹ He uses Watt's and Boulton's steam engines, and

¹ Dr. Thornton says, in a note, "But if any is claimed, I find his boat is exactly in the proportion of the boat we used, and

wheels at the sides of the boat; but an engine on the principles of Watt's and Boulton's was used by us, the application of which was since patented; and the use of wheels at the sides was known to us, and I often urged their use in our first boat; but the objection to them *on so small a scale* was their waste of power by the fall of the buckets or paddles on the water, and their lift of water in rising; both of which objections *would diminish as the wheel increased in size*;¹ but side wheels could not be claimed as a new invention, for their use in navigation had long been known and published to the world by Dr. John Harris, in his *Lexicon Technicum*, in 1710 — just one hundred years ago. If Mr. Fulton should claim the actual application of steam to wheels at the sides of a boat, in opposition to the above declarations, I beg leave to offer, as a caveat against any such claim, the fire ship of Edward Thomason, in the tenth volume of the *Repertory of Arts*, which was laid before the Lords of the admiralty in 1796. This contains wheels at the sides, operated on by a steam engine, and was intended to possess the power of moving given distances, in all directions, according to the intentions of the director; so that, without any person being on board, it would conduct itself into an enemy's port, and by clock work, at a given moment explode the combustibles; which plan, I also presume, might suggest to any person of even less original genius than Mr. Fulton, the mode of letting off torpedoes, which were invented during the war of independence, by the late Major Bushnell, of Connecticut."

It has already been shown that the first model of Fitch at Southampton, Bucks County, had side-wheels, and according to Bache's Advertiser, they were fully

which was made known to him by Mr. Aaron Vail: viz., 8 feet wide by 60 feet long; Mr. Fulton's, 20 feet wide and 150 feet long; in both cases exactly $7\frac{1}{2}$ times the length of the breadth. Other proportions may answer as well, but this is given to show whence he derived his original ideas."

¹ Dr. Thornton took out a patent for propelling paddle or flutter-wheels, Dec. 23, 1814.

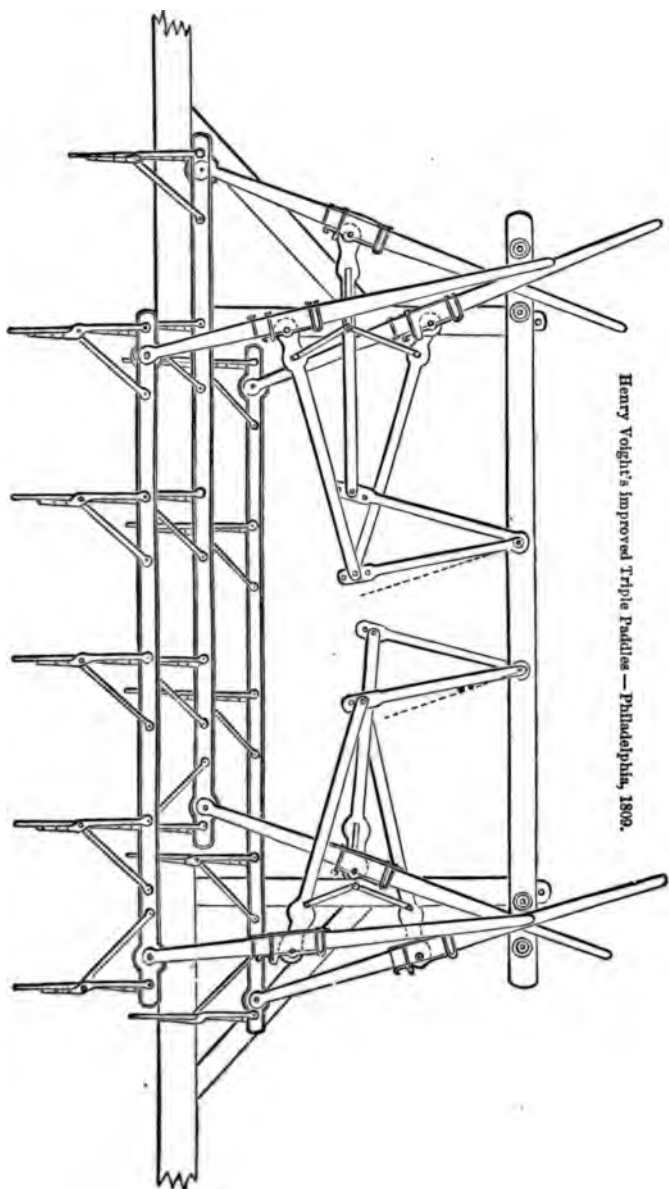
tried on the boat. This was modified by the substitution of paddles on the endless chain; the paddle-wheel was considered a failure. Oliver Evans said on this subject, in 1814,

"When John Fitch and his Company were engaged in constructing their boat at Philadelphia, I suggested to Fitch the plan of driving and propelling the said boat by paddle or flutter wheels at the sides, but he had an objection to them. * * I mentioned the same to Henry Voight, who said that Dr. Thornton was the person who had proposed flutter-wheels at the sides of the boat, but that both himself and John Fitch had objected to them."¹

The noise of Fulton's experiments seems also to have aroused Henry Voight, the old companion and partner of Fitch, who, during many years had, in his comfortable office as chief coiner of the United States Mint, forgotten his struggles and losses in the steam-boat scheme. Applying his inventive genius to work, he produced an improved method of navigating steam-boats by three rows of paddles at the sides. The blades were fastened to beams, moved by levers and cranks, so that one set of the paddles was always in the water. This plan was laid before the American Philosophical Society, with a curious drawing, on the 21st of July, 1809, and is to be found in the MS. volume entitled, "Mechanics, Machinery, Engineering, &c."²

¹ Duer's second letter to Colden, Appendix.

² In 1793, Henry Voight discovered a method of making steel from iron, which it was said exceeded the generality of imported cast-steel when manufactured into knives and razors. It was announced that Mr. Voight would communicate this discovery



Henry Voight's Improved Triple Paddles — Philadelphia, 1852.

On the 9th of November, 1815, Fernando Fairfax, of Washington, D. C., published an advertisement in the *Aurora*, printed at Philadelphia, notifying all persons interested, that authority was vested in him by the holder of the oldest patent-rights for steam navigation in the United States; and that all persons desiring license to navigate by steam must take out license for him, as he held under a member of John Fitch's Company. At that time Fitch's patent of 1791 had expired, and it is probable that the person alluded to was Dr. Thornton. In regard to the original invention, Mr. Fairfax held this language:

"As to Fitch and his Company, I may be permitted to observe, from evidence I possess of the most authentic kind, that their spirit of enterprize pushed them forward against numerous discouragements of that early time, when the power of steam itself was so little known in this country that there was not a man to be found in it to make a complete engine, and the proposal of navigating by steam was regarded as a *wild* project, rather to be frowned on than encouraged by monied men, whose aid alone could thoroughly establish its use. If those spirited individuals spent thousands of pounds in demonstrating their scheme, without reaping the profit which its establishment would have insured, but when others, taking up their invention at a later and more fortunate period, were enabled to realize, they are not the less entitled to the favour of an enlightened community, or to the reward of inventive genius."

gratis to blacksmiths and others interested in the iron and steel manufacture, "which may prove a considerable saving to the United States in the importation of the article, as every blacksmith can make his own steel."

Henry Voight died at Philadelphia, February 7, 1814, in the seventy-first year of his age, and was buried from the house of John Kessler, Esq., corner of Fourth and Coates streets.

The law has changed since the time of Fitch. He claimed for any and all applications of the power of steam to propel boats. The United States patent-laws subsequently passed restrict patentees to their own method of use. Under those regulations, any new application of the means of propulsion might be patented. Thus it happened that Livingston and Fulton had many rivals to contend against.¹ Stevens

¹ Fulton and Livingston seem to have been so well satisfied with the monopoly given them by the assignment or transfer of rights originally granted by the State of New York to John Fitch, that application was not made by Fulton for a patent under the laws of the United States until 1811. Before that time various patents had been issued for the application of steam to the propulsion of vessels. The following is a list of them :

John Fitch, Philadelphia, August 26, 1791.

James Rumsey, Berkely County, Virginia, 1791.

Jehoshaphat Starr, Connecticut, April 28, 1797.

Edward West, Kentucky, July 6, 1802.

Dr. William Thornton, Washington, D. C., January 16, 1809.

Daniel French, New York, October 12, 1809.

John Stevens, New York, January 3, 1810.

Samuel Bolton, Philadelphia, November 1, 1810.

Michael Morrison, Boston, January 17, 1811.

Robert Fulton, New York, February 9, 1811.

The patents for *steam-engines* in the same period were as follows :

John Stevens, Bergen County, New Jersey, August 26, 1791.

James Rumsey, Berkeley County, Virginia, August 26, 1791.

Englehart Cruse, Baltimore, Maryland, August 26, 1791.

J. Smallman and Nicholas J. Roosevelt, May 31, 1798.

Samuel Briggs, Georgia, October 9, 1802.

John Stevens, Bergen County, New Jersey, April 11, 1803.

S. Morey, R. Graves, and G. Richards, Massachusetts, June 15, 1803.

Oliver Evans, Philadelphia, February 14, 1804.

had constructed steam-boats before Fulton had returned from France.

Rooseveltdt had been an early experimenter upon steam-boats, but had no patent.¹ Some arrangement was made with him by Fulton and Livingston, whereby he was prevented from taking adverse action against them. Rooseveltdt went to the West, and built the first steam-boat which ever navigated the Ohio or Mississippi, which was finished in 1811, and called the New Orleans. This boat was of the capacity of one hundred tons. She left Pittsburg in October, being designed to run as a packet-boat between New Orleans and Natchez. This little vessel had a wheel at the stern, and was rigged with two masts and sails. The New Orleans continued to make trips between Natchez and New Orleans until July 14, 1815; when she was wrecked near Baton Rouge by striking a snag.²

Samuel Briggs, Georgia, October 9, 1809.

Daniel French, New York, October 12, 1809.

John Stevens, New York, January 3, 1810.

The patents for *steam-boilers* were as follows:

John Stevens, Bergen County, New York, August 26, 1791.

Elijah Bachus, Virginia, May 31, 1796.

Matthew Longwell, Gettysburg, Pennsylvania, July 11, 1807.

John Stevens, Bergen County, New Jersey, January 3, 1810.

¹ The first patent to Nicholas J. Rooseveltdt, of New Jersey, for propelling boats by steam, was not issued until December 1, 1814.

² In "The Rambler in North America," by Charles J. Latrobe, the following interesting account of the first trip of this steam-boat is given:

"Circumstances gave me the opportunity of becoming acquainted with the particulars of the very first voyage of a steamer in the West. The complete success attending the experiments in

Meanwhile, others had engaged in this business. The Comet, a boat of twenty-five tons, owned by Daniel D. Smith, and built on D. French's patent, was

steam navigation made on the Hudson and adjoining waters, previous to the year 1809, turned the attention of the principal projectors to the idea of its application on the Western rivers; and in the month of April of that year, Mr. Roosevelt, of New York, pursuant to an arrangement with Chancellor Livingston and Mr. Fulton, visited those rivers with the purpose of forming an opinion whether they admitted of steam navigation or not. At this time two boats * * * * * were running on the Hudson. Mr. R. surveyed the rivers from Pittsburg to New Orleans, and as his report was favorable, it was decided to build a boat at the former town.

"This was done under his directions; and in the course of 1811, the first boat was launched on the waters of the Ohio. She was called the 'New Orleans,' and intended to ply between Natchez, in the State of Mississippi, and the city whose name she bore. In October, she left Pittsburg for her experimental voyage. On this occasion no freight or passengers were taken, the object being merely to bring the boat to her station. Mr. R., his young wife and family, Mr. Baker, the engineer, Andrew Jack, the pilot, six hands, with a few domestics, formed her whole burden. There were no wood-yards at that time, and constant delays were unavoidable. When, as related, Mr. R. had gone down the river to reconnoitre, he had discovered two beds of coal, about 120 miles below the rapids at Louisville, and now took tools to work them, intending to load the vessel with the coal, and to employ it as fuel, instead of constantly detaining the boat while wood was procured from the banks.

"Late at night, on the fourth day after quitting Pittsburg, they arrived in safety at Louisville; having been but seventy hours descending upwards of seven hundred miles. The novel appearance of the vessel, and the fearful rapidity with which it made its passage over the broad reaches of the river, excited a mixture of terror and surprise among many of the settlers on the banks, whom the rumor of such an invention had never

launched in 1813. In 1814, the *Vesuvius*, owned by Fulton and others, was built at Pittsburg. The *Enterprise*, built according to French's patent, at Brownsville, Pennsylvania, was the fourth boat.

reached; and it is related that on the unexpected arrival of the boat before Louisville, in the course of a fine, still, moonlight night, the extraordinary sound which filled the air as the pent-up steam was permitted to escape from the valves on rounding to, produced a general alarm, and multitudes rose from their beds to ascertain the cause.

"I have heard that the general impression among the good Kentuckians was that a comet had fallen into the Ohio; but this does not rest upon the same foundation as the other facts which I lay before you, and which I may at once say I had directly from the parties themselves. The small depth of water in the rapids prevented the boat from pursuing her voyage immediately, and during the consequent detention of three weeks in the upper part of the Ohio, several trips were successfully made between Louisville and Cincinnati. In fine, the water rose, and in the course of the last week in November the voyage was resumed, the depth of water barely admitting their passage.

"When they arrived about five miles above the Yellow Banks, they moored the boat opposite to the first vein of coal, which was on the Indiana side, and had been purchased in the interim of the State government. They found a large quantity already quarried to their hand and conveyed to the shore by depredators, who had not found means to carry it off, and with this they commenced loading the boat. While thus engaged, our voyagers were accosted in great alarm by the squatters of the neighborhood, who inquired if they had not heard strange noises on the river and in the woods in the course of the preceding day, and perceive the shores shake, insisting that they had repeatedly felt the earth tremble.

"Hitherto nothing extraordinary had been perceived. The following day they pursued their monotonous voyage in those vast solitudes. The weather was observed to be oppressively hot; the air misty, still, and dull; and though the sun was visi-

Captain Henry M. Shreeve, having greatly improved the arrangements of steam-engines, built the fifth boat, the *Washington*, in 1816. A lawsuit with Fulton and

ble like a glowing ball of copper, his rays hardly shed more than a mournful twilight on the surface of the water. Evening drew nigh, and with it some indications of what was passing around them became evident. And as they sat on the deck, they ever and anon heard a rushing sound and violent splash, and saw large portions of the shore tearing away from the land and falling into the river. It was, as my informant said, 'an awful day; so still that you could have heard a pin drop on deck.' They spoke little, for every one appeared thunder-struck. The comet had disappeared about this time, which circumstance was noticed with awe by the crew.

"The second day after leaving the Yellow Banks, the sun rose over the forests the same dim ball of fire, and the air was thick, dull, and oppressive, as before. The portentous signs of this terrific natural convulsion continued and increased. The pilot, alarmed and confused, affirmed that he was lost, as he found the channel everywhere altered; and where he had hitherto known deep water, there lay numberless trees, with their roots upward. The trees were seen waving and nodding on the bank, without a wind; but the adventurers had no choice but to continue their route. Toward evening they found themselves at a loss for a place to shelter. They had usually brought to under the shore, but everywhere they saw the high banks disappearing, overwhelming many a flat-boat and raft from which the owners had landed and made their escape.

"A large island, in mid-channel, which was selected by the pilot as a better alternative, was sought for in vain, having disappeared entirely. Thus, in doubt and terror, they proceeded hour after hour till dark, when they found a small island, and rounded to, mooring themselves to the foot of it. Here they lay, keeping watch on the deck, during the long autumnal night; listening to the sound of the waters which roared and gurgled horribly around them, and hearing from time to time the rush-

Livingston followed, and the District Court of Louisiana decided against those gentlemen — a judgment which practically set the waters of the West free to every improvement which it was possible to make in steam-boats.

ing earth slide from the shore, and the commotions as the falling mass of earth and trees was swallowed up by the river.

“The lady of the party, a delicate female, was frequently awakened from her restless slumbers by the jar given to the furniture and loose articles in the cabin, as several times in the course of the night the shock of the passing earthquake was communicated from the island to the bow of the vessel. It was a long night, but morning dawned and showed them that they were near the mouth of the Ohio. The shores and the channel were now equally unrecognisable, for everything seemed changed. About noon that day they reached the small town of New Madrid, on the right bank of the Mississippi. Here they found the inhabitants in the greatest distress and consternation; part of the population had fled in terror to the higher grounds, others prayed to be taken on board, as the earth was opening in fissures on every side, and their houses hourly falling around them.

“Proceeding from thence, they found the Mississippi, at all times a fearful stream, now unusually swollen, turbid, and full of trees; and after many days of great danger, though they felt and perceived no more of the earthquake, they reached their destination at Natchez at the close of the first week in January, 1812, to the great astonishment of all, the escape of the boat having been considered an impossibility.

“At that time you floated for three or four hundred miles on the river without seeing a human habitation.

“Such was the voyage of the first steamer. The natural convulsion, which commenced at the time of her descent, has been but slightly alluded to, but will never be forgotten in the history of the West; and the changes wrought by it throughout the whole alluvial region through which the Ohio and Mississippi pour their waters, were perhaps as remarkable as any on record.”

CHAPTER XXIV.

PERSONAL MATTERS — CONCLUSION.

FROM the revelations made in these pages, it can be deduced that John Fitch possessed sterling qualities. He was perfectly honest, and in all that he did he governed his actions by a high code of integrity. His perseverance was astonishing, his faith in the utility of his discovery unwavering. History can scarcely furnish a parallel to his career, and show an instance in which any one kept on in spite of insults such as he met with, notwithstanding discouragements calculated to subdue all hope, and in the midst of poverty the most distressing, and misery aggravated by the sufferings of a sensitive mind. He had his weaknesses, but they were rather those of a spirit which felt its superiority to those who condemned him; and if occasionally there appears in his actions evidence of conceit, it may be pardoned when we reflect how much he was the superior of those who despised him. His temper was quick and passionate. "His general character in Bucks County," says Longstreth, "among his immediate friends, was that he 'bore anger as the flint bears fire; which, being much enforced, gives forth a hasty spark, and straight is cold again.'" He was proud when he thought he was wronged, and even overbearing in his intercourse with others who thwarted

him; but his haughtiness was caused by a belief that he was entirely right. The melancholy history of his struggles and disappointments cannot be read without pity that one so deserving, and who was so correct in his views of the practicability of his great invention, should have been neglected, reviled, and persecuted.

In regard to the personal appearance of John Fitch, we confess some difficulty in comparing what little he has said of himself in that particular and the descriptions given of him by others. Thus he speaks of his diminutive size long after the period at which boys usually have attained considerable stature. When taken prisoner by the Indians, although he had not previously been sick, his captors, upon account of his appearance, gave him a less weight to carry than any of his companions. In his journal, when recording in a burst of admiration the final and most successful experiment, he calls himself "*little Johnny Fitch*." And in another place, alluding to the trifling attention paid to his claims, he partly ascribes it to the "insignificance" of his appearance.

On the contrary, those who speak of him from memory represent him to have been of more than ordinary size. "He was," says Longstreth, "tall, being over six feet in height, and rather stoop-shouldered, with a short neck and spare person, and as straight as an Indian when he walked. He had a dark complexion, and dark hair, which he wore loose over his shoulders, and was a great walker, always going on foot in his Western excursions."¹

¹ "John Fitch, of steam-boat memory," Bucks County Intelligencer.

Mr. Whittlesey says, describing his appearance at Bardstown, "He was six feet two, erect and full. His head was slightly bald, not gray. His manner was dignified, distant, and imposing. He wore a black coat, beaver hat, black vest, light-colored short breeches, stockings, large shoe-buckles, and coarse shoes."¹

"He stood six foot two in his stocking-feet," says Watson, quoting the statement of Mary McDowell, "was what was called thin and spare, face slim, complexion tawny, hair very black, and a dark eye, peculiarly piercing. * * * * His countenance was pleasing, and somewhat smiling. In point of morals and conduct, he was perfectly upright, sincere, and honorable in his dealings, and was never known to tell a wilful falsehood, or, indeed, to use any guile."²

The only way to reconcile these accounts with what little had been said by Fitch about himself, is to believe that it was his habit to speak of himself depreciatingly.

The descendants of this unfortunate man have been numerous, as the following statement, derived from letters in possession of the Longstreth family, will show:

Shaler Fitch, son of John Fitch, the inventor, born 2d Nov., 1767, died 1842.

Louisa Borden, his wife, born 10th Dec., 1778.

Marriage, 12th Oct., 1794.

¹ Sparks' American Biography, 2d Series, Vol. 6, page 146.

² Watson's Annals of Philadelphia, Vol. I., page 587-8.

Children:—

Jeremiah Fitch, born Oct. 11, 1799.

John B. Fitch, born May 31, 1797.

———, born June 6, 1799, died soon after birth.

Phebe B. Fitch, born July 19, 1800, married Aval Tracy.

Oscar Fitch, born June 28, 1803.

Shaler Fitch, born May 6, 1806.

James K. Fitch, born Jan. 25, 1808.

Lucy Fitch, born Feb. 20, 1810.

Irwenia Fitch, ———, married Chester Fraincher.

Lucy Fitch, daughter of the inventor, born ———, 1769, died in 1807. Married James Kilbourn, ———.

Children:—

Hector died young.

Lucy married Matthew Matthews.

Harriet married Dr. Calvin H. Case.

“ “ Avery Battles.

Laura married Renselaer N. Cowles.

Byron married Mary H. Cowles.

Orrel.

Colonel James Kilbourn, who married Lucy, removed with his wife and family to Washington, Franklin County, Ohio, in 1803. Mrs. Fitch, the wife of John Fitch, emigrated there with her son Shaler, who settled at Hartford, Trumbull County. She died there, and is buried at Hartford.

The facts heretofore given are, it is thought, sufficient to show the merits of this neglected and unfortunate man. The subsequent success of Fulton, and the manner in which his biographers have passed over the history of Fitch, have long obscured the merits and labors of the patient projector, who demonstrated the success of his plans years before the period at which the uninformed world has supposed that steam-boats were invented.

How mournfully prophetic, in view of these facts, the expressions of the poor, derided, despised enthusiast, which we find in his journal, and which we have previously quoted !—

“The day will come when *some more powerful man* will get fame and riches from *my* invention ; but nobody will believe that poor John Fitch can do any thing worthy of attention.”

His bones still rest near the Ohio, unhonored by any fitting memorial. Is it not time that the State of Kentucky should do something to testify its respect for the memory of one who, while its lands were yet wild and savage, foresaw the mighty improvement which the giant force of steam would insure to its smiling fields, and who labored to convince mankind of the benefit ? The movement once proposed by Governor Wickliffe should be again commenced and consummated. On some fair promontory near the Ohio, a monument to the inventor of the steam-boat should be raised, having inscribed upon it the beautiful paraphrase of the expression of his hopes, written by John F. Watson :

His darling wish (he said) was to be buried
On the margin of the Ohio ;
Where the song of the boatman might penetrate
The stillness of his resting-place,
And where the sound of the steam-engine
Might send its echoes abroad.

THE END.



Simpson's Obstetric Works.

THE OBSTETRIC MEMOIRS AND CONTRIBUTIONS

OF

JAMES Y. SIMPSON, M.D., F.R.S.E.,

PROFESSOR OF MIDWIFERY IN THE UNIVERSITY OF EDINBURGH, ETC.

EDITED BY

WM. O. PRIESTLY, M.D., EDINBURGH,

FORMERLY VICE-PRESIDENT OF THE PARISIAN MEDICAL SOCIETY.

AND

HORATIO R. STORER, M.D., BOSTON, U.S.,

ONE OF THE PHYSICIANS TO THE BOSTON LYING-IN HOSPITAL.

MEMBERS OF THE MEDICO-CHIRURGICAL AND OBSTETRIC SOCIETIES OF EDINBURGH, ETC.

In two volumes. First volume just published. \$3.

The Moral and Intellectual Diversity of Races,

WITH

Particular Reference to their Respective Influence in the Civil and Political History of Mankind.

FROM THE FRENCH OF COUNT A. DE GOBINEAU.

WITH AN ANALYTICAL INTRODUCTION, AND COPIOUS HISTORICAL NOTES,

BY H. HOTZ.

TO WHICH IS ADDED AN APPENDIX,

BY J. C. NOTT, M.D., OF MOBILE.

Price, \$1.50.

An Exposition of the Church of Christ, and its Doctrine,

FORMING A SUPPLEMENT TO

"THE END OF CONTROVERSY CONTROVERTED."

BY JOHN J. WHITE.

One volume. \$1.

SKETCHES OF VIRGINIA, HISTORICAL AND BIOGRAPHICAL,

BY REV. WILLIAM HENRY FOOTE, D.D.,

PASTOR OF THE PRESBYTERIAN CHURCH AT ROMNEY, VIRGINIA.

Second Series. Price, \$2.

**THE PHILADELPHIA HOUSEWIFE,
OR, FAMILY RECEIPT-BOOK.
BY AUNT MARY.**

IN ONE VOLUME, 12MO. 75 cents.

CLINICAL LECTURES ON SURGERY.

BY M. NÉLATON.

FROM NOTES TAKEN BY WALTER F. ATLEE, M.D.

**The U. S. Naval Astronomical Expedition
TO THE SOUTHERN HEMISPHERE,
DURING THE YEARS 1849, 1850, 1851, 1852,
UNDER LIEUTENANT J. M. GILLIS.**

CHILE:

**Its Geography, Climate, Earthquakes, Government, Social Con-
dition, Mineral and Agricultural Resources, Commerce, etc.**

BY LIEUT. J. M. GILLIS.

IN TWO VOLUMES, QUARTO.

Price, \$10.

**TEN NIGHTS IN A BAR-ROOM,
AND WHAT I SAW THERE.**

BY T. S. ARTHUR.

IN ONE VOLUME, 12MO. 75 cents.

**THE TWO ROADS,
OR, THE RIGHT AND THE WRONG**

BY JAMES KNORR.

IN ONE VOLUME, 12MO. \$1.

MIRANDA ELLIOT,

OR,

THE VOICE OF THE SPIRIT

In one volume, 12mo. \$1.

BALDWIN'S PRONOUNCING GAZETTEER.

A PRONOUNCING GAZETTEER:

Containing Topographical, Statistical, and other Information, of
the more important Places in the known World,
from the most recent and authentic
Sources.

BY THOMAS BALDWIN,

Assisted by several other Gentlemen.

To which is added an APPENDIX, containing more than TEN THOUSAND
ADDITIONAL NAMES, chiefly of the small Towns and Villages, &c.,
of the United States and of Mexico.

NINTH EDITION, WITH A SUPPLEMENT,

Giving the Pronunciation of near two thousand names, besides those pro-
nounced in the Original Work: Forming in itself a Complete Vo-
cabulary of Geographical Pronunciation.

ONE VOLUME 12MO. — PRICE, \$1 50.

~~~~~  
FIELD'S SCRAP BOOK. — NEW EDITION.

## Literary and Miscellaneous Scrap Book.

Consisting of Tales and Anecdotes—Biographical, Historical, Moral, Religion,  
and Sentimental Pieces, in Prose and Poetry.

COMPILED BY WM. FIELDS.

SECOND EDITION, REVISED AND IMPROVED.

In one handsome 8vo. Volume. Price, \$2 00.

## PEPYS' DIARY.

## DIARY AND CORRESPONDENCE

OF

SAMUEL PEPYS, F.R.S.

SECRETARY TO THE ADMIRALTY IN THE REIGNS OF CHARLES II. AND JAMES II.  
FROM THE ORIGINAL SHORT-HAND MS. IN THE PEPYSIAN LIBRARY,  
WITH A LIFE AND NOTES.

BY RICHARD LORD BRAYBROOKE.

First American, from the Fifth London Edition.

In four volumes. Price, \$5

RUSCHENBERGER'S NATURAL HISTORY.

COMPLETE, WITH NEW GLOSSARY.

**THE ELEMENTS OF NATURAL HISTORY,  
EMBRACING ZOOLOGY, BOTANY, AND GEOLOGY,  
FOR SCHOOLS, COLLEGES, AND FAMILIES.**

BY W. S. W. RUSCHENBERGER, M.D.  
IN TWO VOLUMES.

WITH NEARLY ONE THOUSAND ILLUSTRATIONS, AND A COPIOUS GLOSSARY.

Vol. I. contains *Vertebrate Animals*. Vol. II. contains *Invertebrate Animals, Reptiles, and Geology*.

**The Mexican War and its Heroes;**

BEING

A COMPLETE HISTORY OF THE MEXICAN WAR,  
EMBRACING ALL THE OPERATIONS UNDER GENERALS TAYLOR AND SCOTT.  
WITH A BIOGRAPHY OF THE OFFICERS.

ALSO,

AN ACCOUNT OF THE CONQUEST OF CALIFORNIA AND NEW MEXICO,  
Under Gen. Kearney, Col. Doniphan and Fremont. Together with Numerous Anecdotes of the War, and personal adventures of the Officers. Illustrated with Accurate Portraits and other Beautiful Engravings.

In one volume, 12mo.

**A Book for every Family.**

**THE DICTIONARY OF  
Domestic Medicine and Household Surgery.**

BY SPENCER THOMPSON, M.D., F.R.C.S.,

Of Edinburgh.

ILLUSTRATED WITH NUMEROUS CUTS.

REVISED AND ADAPTED TO THE WANTS OF THIS COUNTRY, BY A  
WELL-KNOWN PRACTITIONER OF PHILADELPHIA.

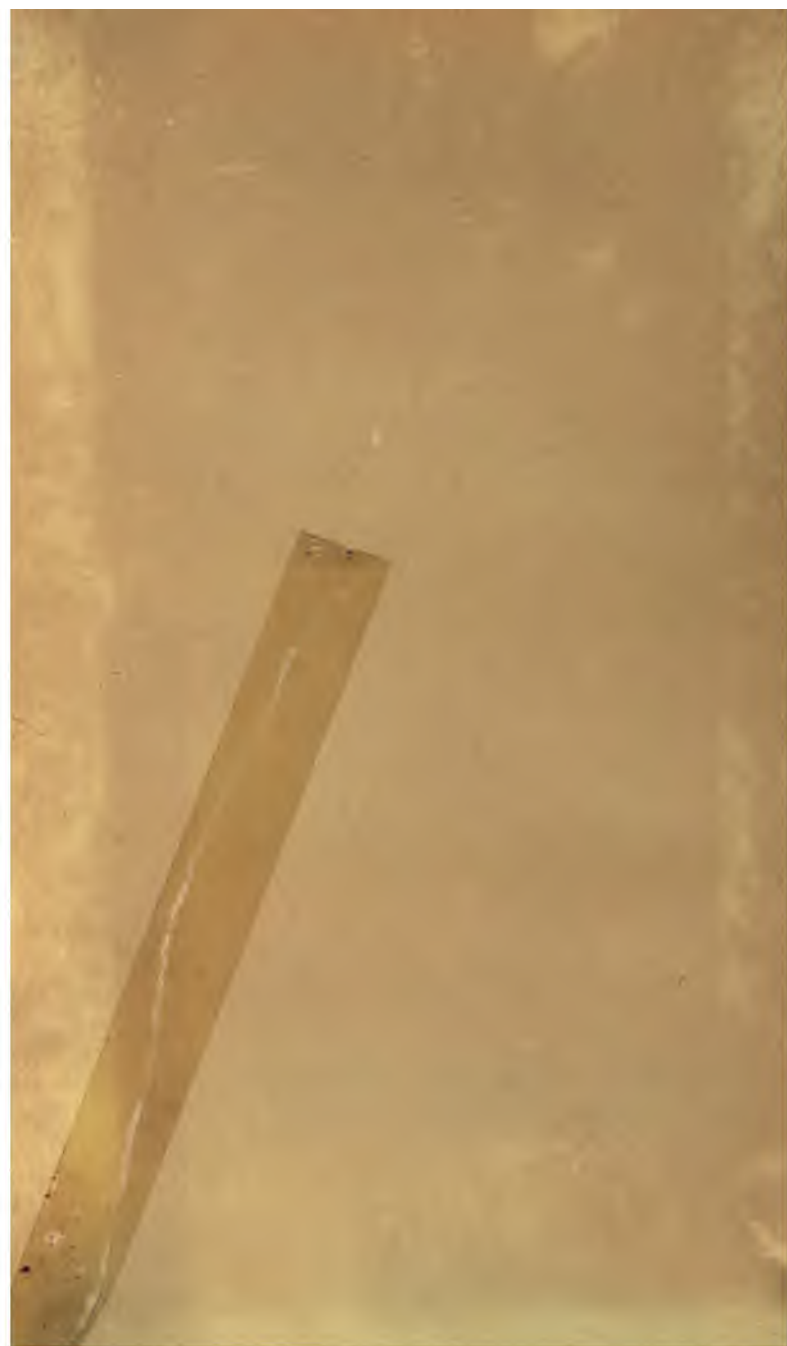
In one volume, demi-octavo.



100

100

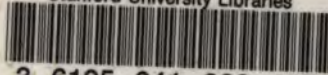
100





TRANS

VM 140 .F5 W5  
Life of John Fitch,  
Stanford University Libraries



3 6105 041 668 117

DATE DUE

| DATE DUE |  |  |  |
|----------|--|--|--|
|          |  |  |  |
|          |  |  |  |
|          |  |  |  |
|          |  |  |  |
|          |  |  |  |
|          |  |  |  |
|          |  |  |  |
|          |  |  |  |
|          |  |  |  |
|          |  |  |  |
|          |  |  |  |
|          |  |  |  |
|          |  |  |  |

STANFORD UNIVERSITY LIBRARIES  
STANFORD, CALIFORNIA 94305-6004

